AMERICAN JOURNAL of VETERINARY MEDICINE

Copyright 1919 by The American Veterinary Publishing Co., Published Monthly.

No. 9 South Clinton St. Chicago, U. S. A.

VOL. XIV OCTOBER, 1919 NO. 10

Preventive Medicine

By WM. G. KEEHN, D. V. M., Chicago.

PREVENTIVE medicine covers a great scope and is classified in many ways. From a practitioner's standpoint, it may easily be classified under the following heads:

1. Immunization;
2. Sanitation.

Immunization is the process whereby proper agents are employed to increase the normal faculty possessed by a living animal of resisting an infection or intoxication, as the vaccination of calves against blackleg or administering tetanus antitoxin for preventing tetanus.

The immunity conferred in this manner may be active, one which is of long duration, as in vaccination for the prevention of smallpox, or the simultaneous vaccination for the prevention of hog cholera, and in some instances, may be throughout life, or it may be passive, one which is of short duration, usually not to exceed ninety days. This type of immunity is conferred in swine where the single, or serum alone, method is employed for the prevention of cholera. The immunity produced in either instance is termed an acquired immunity.

Acquired immunity to a specific disease may be a natural condition resulting from an attack of the disease; for instance, an animal rarely suffers from more than one attack of blackleg or anthrax; or it may be a condition artificially produced in an animal in response to the inoculation of a virus, vaccine, bacterin, toxin or the serum of an immune animal.

All species of animals, as well as all individuals, possess a certain degree of natural immunity. In some cases it has a relation to age. Adults may be immune while the young of the same species are susceptible to a certain infection; thus blackleg and strangles chiefly affect young animals.

This immunity may be absolute. For instance, the ox is naturally immune to glanders, the horse to hog cholera, and the dog to anthrax; or it may be partial; that is the animal may be immune to a certain infection under ordinary circumstances, but susceptible, if subjected to unusual hardships or other conditions that exhaust or lower its vitality. This immunity may be decreased or reduced in many ways, rendering the animal more susceptible to the infectious diseases which exist in that particular locality.

The agents employed in preventive medicine which increase the natural resisting powers of the animal may be classified under three chief headings.

1. Vaccines;
2. Bacterins;
3. Immune Serums.

These terms are used interchangeably by many veterinarians and some biological houses, perhaps through carelessness, speak of vaccines as serums, bacterins as vaccines and in fact, call them anything to suit their convenience (or it may be it is done to facilitate sales). It would be more

*Read at the Ill. Vet. Med. Assn. meeting, Champaign, Ill., July 8, 1919.

scientific and simplify things if we would refer to the various biologic agents by the proper terms and employ a uniform nomenclature.

A vaccine is an attenuated virus containing the living organism which if properly prepared, is so attenuated that it can produce the disease only in a mild form. Vaccines are the oldest form of preventive agents. Jenner was probably the first to produce a true vaccine, although smallpox inoculation was practiced in Turkey before his time, as it is practiced in China among the natives still.

Vaccines as previously stated, produce the disease in a mild form. Thus, active reaction takes place in the living tissues in response to the inoculation and results in the animal acquiring new properties which antagonize, neutralize or destroy the products of invading organisms. This active immunity is acquired slowly and at times at great expense to the animal, but is lasting and occasionally absolute. The vaccines most frequently employed in veterinary practice are anthrax and blackleg vaccines, and the virus of rabies. They are indicated when there is danger of an outbreak of any of the above mentioned diseases, and only then should they be employed, as the danger of introducing an infectious disease into a community is too great to use them promiscuously.

Vaccines, like many other biological products, are preventive only and not curative agents. Therefore, they should be used before the animal manifests symptoms of the disease.

Bacterins are suspensions of dead bacteria and their products either in a normal saline solution or in boullion. Unfortunately they are marketed under various trade names which are more or less confusing or misleading to the practitioners. They usually consist of pyogenic bacterins, although there are several non-pyogenic organisms which produce disease that are used in the production of bacterins that when properly employed give very gratifying results. At the present time, many organisms are employed in the production of a bacterin. The value of a bacterin lies in the endotoxin it contains. Therefore, if the organism is one which does not produce an endotoxin, it cannot be utilized. One organism, which is used in the production of a so-called bacterin that does not produce an endotoxin is the B. necrophorus. Money spent for such a bacterin is money wasted.

Bacterins when properly prepared and administered produce an active immunity by increasing the opsonic index and, in some cases at least, by the production in the body of bacteriolysins. Both of these properties are specific and act against spesific organisms. For instance, a streptococcus bacterin is of no value in hemorrhagic septicemia organisms.

Bacterins are of two kinds. Stock bacterins, those made from bacteria gathered from various sources; and autogenous bacterins or those made directly from the organisms responsible for the diseased condition existing in an animal. For many conditions, the latter are of the most value, but as a prophylactic agent, the stock bacterin is of great importance, especially in such diseases as are produced by the hemorrhagic septicemia group of organisms. They are also indicated in navel ill in colts, white scours in calves; perhaps in infectious abortion, and many other conditions.

One thing must be borne in mind, which will probably explain, at least some of the unsatisfactory results following the administration of large doses of bacterins; that is, immediately following the injection there is a strong positive phase, which is followed by a very marked negative phase during which the resistance is lower than preceding the injection. During this period the animal body is more highly susceptible to increased action by invading bacteria. They become more virulent and increase; the animal becomes very ill and in some instances succumbs to the disease.

An immune serum is the liquid part of the blood containing the various antibodies produced in the animal as a result of having had the disease or by successive inoculation with a specific organism or toxin, the blood having been coagulated or defibrinated and all solid particles removed.

If a susceptible animal be inoculated with such a serum, it is rendered immune, but in this case its immunity is passive, because the animal so treated has taken no active part in the process of immunization, which resides solely in the immune serum contained in its blood and which is essentially a foreign body and as such soon eliminated from the system. When that

occurs the immunity is lost. The period during which such an immunity lasts is always short, usually not to exceed ninety days, dependent upon the time during which the substance remains in the tissues. As soon as it is eliminated, the immunity is gone. This passive immunity is specific and is only exhibited towards the species of organisms with which the first animal was inoculated. For instance, anti-diphtheric serum is of no value in preventing or curing tetanus.

Immune serums may exhibit one or more properties, each quite independent of the other, and in different degrees. The properties which serum possesses may be grouped as follows:

1. Prophylactic and therapeutic;
2. Antitoxin;
3. Agglutinating;
4. Bactericidal;
5. Properties which prepare bacteria for ingestion by leukocytes. These substances are termed opsonins.

Of this group, the first two probably are of the greatest importance to the practitioner, and therefore are the only ones we will consider.

All immune serums possess prophylactic properties. Some also exhibit therapeutic powers, and if injected after the first symptoms appear they abort the disease and lead to recovery. The therapeutic powers of a serum do not always run parallel with the preventive powers. For instance, diphtheria antitoxin possesses both, while tetanus antitoxin exhibits marked preventive powers but little or no curative properties.

The antitoxic properties are strictly specific and will only neutralize the toxin of the particular organism which has caused its production. So far as is definitely known, there are only four organisms for which an antitoxin can be produced, the B. tetani, B. pyocyaneus, B. botulinus and the B. diphtheriæ.

The value of a serum for the condition produced by any of these organisms is due to a special substance known as antitoxin, the nature of which is little understood.

The principal antitoxin employed in veterinary practice is tetanus antitoxin. If antitoxin is injected before the toxin is formed it will protect against tetanus. The immunity conferred in this manner is transitory or passive, begins to diminish after about a fortnight and disappears altogether in about seven weeks. This probably explains why an occasional animal will develop tetanus several weeks or months after a possible infection.

The preventive powers depend upon the amount of antitoxin administered and on the time elapsing between the infection and the administration of antitoxin. The cure of tetanus is always difficult after symptoms have manifested themselves, because their appearance indicate the nerve elements are involved and the antitoxin administered only combines with the toxin in the blood and not with that in the nerve tissue, which is the part doing the damage. Treatment fails in the more severe forms and only seems to give positive results in sub-acute or chronic cases. According to Roux and Borrel, the intracerebral injection of tetanus antitoxin is the most certain way of overcoming the disease when symptoms once appear. The antitoxin treatment is harmless and should always be adopted in valuable animals.

Since it is proved that the B. botulinus is responsible for some forms of ensilage poisoning, we expect an antitoxin as a preventive. This substance is still new and little is known about its qualities. It seems it must be given soon after infection if favorable results are to be hoped for.

Pyocyaneus infection is common only in hogs (necrotic enteritis) and no antitoxin has been placed on the market for combating it.

Serums are prepared for a number of conditions. While some of them possess curative powers, they give the best results when employed as prophylactic agents and should always be administered when there is danger of their respective disease developing and not wait until the first symptoms appear.

All of the biological products should be obtained from a reliable laboratory and used with great care and judgment, not only in administering them, but also in correctly diagnosing the condition before employing them.

A single incompetent, careless or unprincipled practitioner may easily do the entire nation millions of dollars worth of injury. This does not apply only to practitioners, but applies as well to laboratories who sell their products to the laity. A veterinarian buying cheap biological prod-

ucts may spread other infectious diseases. It is the incompetent or careless man who least realizes or fails to realize that cheap products generally indicate inefficient care in production.

By sanitation is meant the establishment of conditions favorable to the health of the animal. It is estimated that infectious diseases of farm animals alone take a toll of more than a quarter of a billion dollars annually and more than half of this loss is due to controllable diseases. This does not include the losses produced by parasites.

Thus far, many veterinarians, as well as the live stock owners have been prone to belittle and ignore the real significance and importance of sanitation, with the result that there is a greater or less financial loss to the owner and the reputation of the veterinarian.

From our point of view, sanitation may be divided into two chief groups:

1. Improvement of general conditions;
2. Lessening the amount of infection.

As the improvement of the general condition of the animal is a common sense problem, rather than a scientific one, professional advice will seldom be sought in the matter.

Lessening the amount of infection is the division of sanitation which is of the greatest importance to both the stock owner and veterinarian as it is the means through which not only infectious but also parasitic diseases may be checked or completely eradicated.

This part of sanitation includes many phases, the more important ones are:

1. Location of building and yards;
2. Buildings;
3. Water supply;
4. Disinfection;
5. Disposal of sick and dead animals;
6. Quarantine.

In selecting the site for a building and yards, the question of drainage should receive first consideration, as good drainage is a necessary requirement. The yards should have free exposure to sunlight, though some shade must be provided for protection during excessively hot days.

Buildings should be so constructed that they can easily be disinfected. Cracks and unnecessary corners should be avoided as these afford protection for parasites and harbor contagion. Good ventilation provided for by proper arrangement of doors, windows and the construction of ventilators is conducive not only to good sanitation but to the health and comfort of animals; the arrangement of the building should admit sunlight freely, as it is one of the most powerful disinfectants and is necessary to the health and contentment of the animals.

The source of the water supply should be such that it is wholesome and uncontaminated. Many infectious and parasitic diseases are spread or carried by water.

Disinfection is the process whereby microorganisms or parasites are removed or destroyed. Because of the ability of organisms to multiply from a single individual or a single pair, at an astonishing rate, and speedily reinfect the premises, it is necessary that to be of any value, the disinfecting must be thoroughly done. In order to accomplish this end, it should be carried out systematically, under the personal instructions of a competent veterinarian.

Disinfectants may be grouped under two heads, as chemical and physical. Chemicals are usually of three kinds; solids, liquids and gases. The physical are heat and sunlight.

The first step in the disinfection of any building is the removal of all manure, trash and litter as it may furnish a hiding place from which will emerge parasites or organisms and reinfect the whole building and spread disease anew. Mangers, partitions and floors, if removed from the building should be disinfected before being returned. If they are left in the building, they must be as thoroughly cleaned as the remainder of the building and the disinfectant must be applied to them the same as to the other parts.

Of the solids, lime is probably the most important one. Gases should be used only when the building can be closed tightly enough to prevent its ready escape.

Disinfectants that can be applied in the liquid form are best suited for disinfecting the ordinary barn. It requires longer to apply them than it does to prepare for disinfection by gas, but if thoroughly applied they are more satisfactory. They are applied with a spray pump and act more vigorously when hot.

Disposal of sick and dead animals. A strict adherence to the rules of sanitation

(*Continued on page* 511)

Displacement of the Intestines

By B. L. LAKE, D. V. M., Teutopolis, Ill.

THERE is nothing in the whole range of comparative pathology, including the diseases of man, which compares in violence, suddenness and mortality, with the digestive diseases of the horse. (Fred Smith.)

The most common cause of death from diseases either of the large or small intestines is displacement, partial or complete. Careful inquiry will prove the accuracy of this statement. What has in the past been considered and reported as inflammation, was in reality mostly displacement.

Classification of colic in horses has been made according to all conceivable rules and principles, which in the aggregate would make many volumes. The importance of the subject justly deserves the full extent of this treatment, but for all practical requirements, colic may be divided into four classes according to conditions present.

1. Irritation: An irritant of some nature in the stomach or intestinal contents causing pain by its action on the mucous membranes or by reflex—the old spasmodic colic.

2. Fermentation: Indigestible material in the stomach or intestinal contents causing pain by gas formation and distention—the old flatulent colic.

3. Impaction: An over-accumulation of fecal matter in some part or parts of the stomach or intestines causing pain by its weight, by its distending force and by its resistance to the natural efforts of the intestines to expel it—the old bound-up bowels.

4. Displacement: An invagination, strangulation or torsion of some part of the intestines causing pain by pressure on the nerves and bloodvessels and by its resistance to the expulsion of fecal matter—the old inflammation of the bowels.

Each one of these four classes may be

A twisted bowel causing death of a draft gelding. This animal had been sick some eight or ten hours when I was called in consultation. The attending veterinarian had informed the owner that he suspected a twisted bowel but the owner thought him mistaken in his diagnosis and he was told that consultation would be called. In this case there were no distentions from gas visible and feces were passed at regular intervals which led the owner to believe that the doctor's diagnosis was incorrect. The owner was informed of what might be expected if arecolin or eserin was given and we decided to try it out. Shortly after the eserin was administered regurgitations began to take place and there was nothing more pleasing to us than to be able to demonstrate to the man the actual conditions which followed a twist. An unfavorable prognosis was given and the owner instructed to call both of us as soon as the animal died. The following morning we received a call and we arranged to meet for the autopsy. On opening the abdominal cavity nothing abnormal could be seen and only after carefully looking over the intestines and removing them did we get to the twisted portion. In the first picture it is shown as it was found among the bowels, the twisted portion can be seen at Fig. 2, the loop being formed by the portion Fig. 1. In the second picture the twist can be seen as it appeared when raised some distance from the remainder of the bowels. This was located in the small intestines about two feet from the stomach.—*W. P. Bossenberger, Williams, Iowa.*

subdivided and elaborated upon at great length, but as indicated by the caption, I wish to consider displacement. That we may more intelligently study displacement, a short resume of the anatomy of the intestines of the horse is in order.

Anatomy

The digestive system proper begins with the stomach in the diaphragmatic region of the abdominal cavity. Its direction is transverse to the median plane of the body. Its average capacity is three gallons.

The small intestines begin at the right or pyloric side of the stomach and terminate in the superior part or left side of the cecum. The first part after the stomach is the duodenum; the second, the jejunum; the third or terminal part, the ileum. The small intestines average seventy-two feet in length and a little over one inch in diameter. They occupy the central region of the abdominal cavity.

The large intestines begin with the cecum, which receives the terminal part of the small intestines. Its average length is a little over three feet and its capacity seven and one-half gallons. There are four longitudinal bands on it. The cecum occupies the right sublumbar region.

The large colon originates from the left superior part of the cecum just above the termination of the small intestines. Its average length is ten to thirteen feet, the capacity twelve to eighteen gallons. It is composed of four divisions, the first continuing from the cecum; this has four longitudinal bands. At the diaphragm it bends downwards and to the left forming the first or sternal flexure. The second division runs back to the pelvic cavity, where it bends upward and to the left,

Intestinal Volvulus does not always cause as rapid a death as one might suppose would follow when this channel of elimination is obstructed. The accompanying picture shows an animal that had suffered a number of days from one of these conditions. In the picture all symptoms point to great pain, as is shown by the sunken eye, dilated nostrils, crampy position of the hind quarters and the continual pawing while standing. The poor animal would strike the ground with such force that the earth vibrated for some distance around him. This animal was attacked some four or five days previous with an impaction of the double colon, but was relieved in a few hours with the usual remedies. The following morning the owner reported the animal somewhat droopy in appearance, apparently O. K. otherwise. The next day I received a call stating that the bowels had not moved as freely as usual and desired to have the horse examined again. On auscultation over the abdominal regions faint sounds could be heard at long intervals. Thinking that atony might have resulted from the impacted bowels stimulating medicines were given. At this time there was a slight rise in temperature and the pulse was soft and slightly increased in frequency, but this was thought to be the result of the attack a few days before. A couple days later another call asking me to hurry out, came over the 'phone and upon my arrival I found the animal as shown in the first picture. The pulse was imperceptible, the breathing shallow and very rapid, the expired air cold and a cold perspiration covered the body. All symptoms pointed to a rapidly approaching death and I decided to watch the animal for some time. A short time afterwards he fell and lay striking and gasping for breath for a few minutes before he died. An autopsy was held and picture No. 2 shows how the single colon had formed a loop, Fig. 1, and caught another loop of intestines, Fig. 2, so firmly as to cause strangulation of the bowel. Fig. 3 is a continuation of the intestine caught in the loop of the single colon. I believe that this took place during the first attack of colic but the strangulation was not complete until congestion had set in when the increased thickness of the bowel made it a complete one. I think this was the cause of the spasmodic attacks of colic shown the days following the first attack. In the slightly congested stage food could pass but in doing so brought on the pain at intervals. In this case we have seen that volvulus does not end fatally as rapidly as one might suppose and still the entangled condition might have taken place during one of the attacks of pain following his first illness. But what caused the spasmodic attacks if they were not due to this?—*W. P. Bossenberger, Williams, Iowa.*

forming the second or pelvic flexure—this also has four longitudinal bands. The third division runs forward to the diaphragm, then bends upward and to the right, forming the third or diaphragmatic flexure; this has only one longitudinal band. The fourth division runs back to the base of the cecum, terminating near the origin of the first division; this has three longitudinal bands. The large colon as a whole occupies the sublumbar region.

The small or floating colon continues from the termination of the fourth or last division of the large colon and terminates at the inlet to the pelvic cavity at the forepart of the rectum. Its average length is ten feet, its diameter two or three and one-half inches; this has two longitudinal bands. It occupies the left lumbar region.

The rectum is the terminal dilatable portion of the small colon occupying the upper part of the pelvic cavity.

Displacement of the intestines in horses occurs in three classes in the following proportions: Invagination 2, strangulation 7, torsion 14.

Invagination

Invagination is a condition where one portion of intestines slips into an adjacent portion forming a telescoped effect. Practically always an anterior portion becomes invaginated into a posterior portion. The invaginated portion contains three parts of intestines—the receiving part, the entering part and the returning part. Double invagination also occurs, and in that case there are five parts. More rarely a triple invagination occurs making seven parts, thus forming a lump of great volume. The majority of invaginations are found in the jejunum. It produces a fairly rapid vascular engorgement, discoloration, visceral peritonitis, necrosis and if the course has been ten hours, adhesions are formed between the implicated peritoneal layers. Besides the usual location in the jejunum, invagination may occur though more rarely at the ileocecal valve and in extremely rare cases, the ileum may pass through the opening of and into the first division of the large colon.

Etiology: Disordered nervous and muscular action, irregular peristalsis and inertia of a portion of the intestines inducing dilatation with contraction of the parts immediately anterior.

Torsion of the small intestine, which caused the death of a high-bred horse, reported by Dr. Chas. E. Stone, Prattsburgh, Pa, January, 1919.

Volvulus of the small intestines in a mule reported by Dr. C. L. Ivey, San Marcos, Texas.

In this picture we have another form of volvulus. This is a section of small intestines of a horse. This animal had been treated by one of my fellow practitioners until I could make the call, the animal was almost uncontrollable, so intense was the pain. When I first saw the patient, food was being regurgitated through the nostrils in considerable quantities. The veterinarian informed me that he had given the animal two doses of one and one-half grains eserin at half hour intervals and that the regurgitation had started shortly after giving the first dose of eserin. I informed him that a volvulus might be the cause of these symptoms and he decided he had better stop the administration of this drug and use something a little less drastic in action. Following the administration of eserin violent sounds could be heard in the region of the stomach which would travel backward to about the twelfth rib, then stop and begin to roll in the opposite direction. These sounds could be traced through the stomach, up the esophagus and nostrils and were followed each time by the expulsion of food. A physic ball was given and we decided to wait until next day to see what ould follow. The following day we again saw the animal. The regurgitations had ceased but the animal was very much depressed and no bowel movements had taken place. We felt certain that recovery could not take place and so informed the owner and asked him to notify us when the animal died, as we wanted to hold a post mortem examination. The next day the animal was found dead in the barn and an autopsy was held. The small intestines had formed a complete twist several feet from the pylorus. Twisted bowels are not always easy to diagnose but an extreme case like this one is rather easy. When regurgitations follow the administration of eserin or arecolin one can feel pretty safe in diagnosing a twisted bowel. My experience has been that any animal showing such symptoms will die, but there are cases where I believe that a partial volvulus existed in the beginning of the attack and unlocked itself from some cause, probably through the rolling and tumbling of the animal. I also find that many patients show only slight symptoms of pain in the first stages of the attack which often leads one to believe that it is only a mild case of colic, but continues to grow worse as time goes on. Then there are other cases accompanied by severe pain which subsides as congestion and paralysis progress. The early symptoms shown by the animal in this case I did not see but was told by the veterinarian that he got up and down like any ordinary case of colic, but that the animal frequently pointed to its left side. The pains became more violent and gastric flatulence was noticeable. Small passages of feces occurred during all this time and when the owner was informed of our prognosis I believe he thought we were badly mistaken as he could not understand how feces could be passed when a twist existed in a bowel. This we explained to him and he became satisfied that such might be the case and the autopsy confirmed it. In holding an autopsy one has to be very careful in examining the bowels as the volvulus is often hidden beneath a large portion of the intestines and is very easily overlooked.—*W. P. Bossenberger, Williams, Iowa.*

Strangulation

A loop of bowel passing through a congenital or traumatic opening or acquired condition in the abdominal cavity, becoming held in the opening and prevented from returning to its place. The congenital openings that may be involved are the foramen of Winslow, Meckel's diverticulum, foramen sinistrum, the umbilical opening, the inguinal opening and congenital openings in the mesentery. The traumatic openings are rupture of the diaphragm, rupture of the mesentery and rupture of the peritoneum. The acquired conditions are various true and false ligaments, bands, adhesions and neoplasms.

Etiology: The congenital openings may have remained too far open or become reopened traumatically as in umbilical and inquinal hernia in mature subjects; hence, the cause may be a congenital defect or violence or a combination of both. The traumatic openings are caused by violence or are secondary to a previously existing degenerative condition. The acquired conditions are caused by previous violence or degenerative condition or by neoplasms formed without any known cause as the common lipoma of the mesentery. Any part of the intestines may be involved, but the small intestine, especially the jejunum, is most frequently involved by reason of small diameter, usual state of emptiness and great mobility due to the long mesentery.

Torsion

A torsion or twist may be upon the axis of the intestines, or one portion of intestines upon another, or upon the axis of the mesentery. In the large colon, it is usually one portion of intestines upon another; in the small intestines it is usually upon the axis of the mesentery; and in the small colon, usually upon the axis of the intestines themselves. Twist of the large colon is usually at one of the flexures and more or less incomplete. In the milder forms there is only slight vascular and fecal obstruction.

Etiology: Disordered muscular and nervous action, work exhaustion and empty

condition of the bowels, tympany of intestines and violence.

General Symptoms of Displacement

The actions of the animal are those of colicky pains in general, together with serious constitutional disturbances manifested by weak and rapid heart action and pulse, deep and accelerated respirations, an increase of several degrees in temperature, mucous membranes highly injected and patchy sweating running into cold sweat over the whole body on approaching death. Abnormal postures are practically always present though their absence would not exclude strangulation definitely, and furthermore they are sometimes present in conditions other than displacement.

The following abnormal postures are usually observed. The head held low down with ears drooping, nose to the ground or nearly so, holding the nose to the flank for a prolonged period, a crouching walk with considerable hesitation before lying down, finally going down very slowly and carefully, sitting on the haunches for long periods, lying on the sternum with the front limbs advanced, at the same time executing forward rolling motions and the animal holding itself on its back. The pain is constant and persistent. Rectal examination though sometimes negative often reveals abnormal position or direction of some division of the intestines with tenderness to pressure or traction.

With the presence of abnormal postures, grave constitutional disturbances and findings by rectal examination positive in some way all in the same animal, we may make a diagnosis of displacement of the intestines with a very reasonable degree of accuracy.

General Treatment

Provide the animal with a comfortable place. Avoid all treatment that may aggravate the condition. Control pain as far as possible by ordinary methods. Chloral hydrate in warm solution by the rectum is very efficacious for controlling pain, and it is supposed to be helpful in the reduction of some forms of displacement. Aromatic spirits or solution of ammonia is very satisfactory for its stimulant and antifermentive action.

Special Symptoms of Invagination

Invagination of the jejunum runs a rapid course culminating in death in about seven hours. Ileocecal and ileocecal-colic invagination runs a slow course. Death at the end of about a week is the rule. However, recovery is possible by sloughing and passing of the invaginated tube of bowel with the feces. This slough constitutes the only positive symptom. The pain is constant, acute and persistent. After full development, peristalsis ceases, at least in the affected portion of intestines. Findings by the rectum would be a lump or enlargement with the viscera in the central region of the abdominal cavity.

Special Symptoms of Strangulation

The average duration of strangulation is twelve to thirty-six hours depending on its degree. Recoveries are rare. The pain is moderate and constant with short attacks of violent pain. Strangulation in the umbilical or inguinal openings may be detected by external palpation of the region.

Strangulation by rupture of the diaphragm may be acute or chronic. In acute cases death may occur almost instantly by asphyxiation or in twelve to thirty-six hours from strangulation. Chronic cases develop frequent attacks of colic, chronic difficulty in respiration especially in going down hill, tympanitic sounds on percussion of the chest, auscultation of the chest revealing gurgling, splashing sounds and peristaltic action.

Special Symptoms of Torsion

The course is about twelve hours in the complete and a week in the incomplete form. Twist of the small colon often corrects itself, effecting instant recovery. Other forms are usually fatal. The pain is of a dull character but continuous. Twist of the small colon produces violent straining fits. On rectal examination, we find coils of small intestines in the pelvic cavity or inlet. The longitudinal bands may run transversely and a twist or lump may be felt on the colon in the left lumbar region, exhibiting tenderness to pressure or tension on the colon. In twist of the small colon, the hand may locate partial or complete obstruction of the lumen of the bowel.

Dr. Boswell, formerly of Toronto, Ontario, has located for practice at Delmar, Iowa.

Dr. George W. Constable was recently discharged from the veterinary corps, in which he attained the rank of major, and has resumed practice at Santa Rosa, Cal.

AMERICAN JOURNAL of VETERINARY MEDICINE

Published Monthly by
AMERICAN VETERINARY PUBLISHING CO.,
9 So. Clinton St., Chicago

Address all communications to the AMERICAN JOURNAL OF VETERINARY MEDICINE, 9 South Clinton Street, Chicago, U. S. A.

Subscriptions from the United Kingdom should be sent to Messrs. Bailliere Tindal & Cox, No. 8 Henrietta Street, Covent Garden, London, England.

Drifting

The *Washington* (D. C.) *Star* recently carried the following news item:

H. E. C. Bryant, who writes Washington news for certain metropolitan newspapers, has an interesting sidelight on the high cost of living. By way of recreation and to reduce his own living expenses Bryant owns a farm six miles out in Maryland. Recently one of his thirty-eight pigs had cholera and he called out one of the best veterinarians in in Washington, who made two trips in his automobile and vaccinated the hogs.

Bryant thinks it has something very material to do with the cost of living that this professional man, college trained, using up gasoline and wear and tear on tires, only got $5 for the job, while Bryant had to pay a colored boy $1 an hour to hold the pigs while they were being vaccinated.

About the same time the *Prairie Farmer* of this city ran a scarehead on its editorial page alleging that there is a "veterinary trust" in Illinois and to show its (the veterinary trust's) iniquity, stated that some veterinarians in this state are profiteering in anti-hog-cholera vaccination, charging the farmers mileage, 25 cents a head and two and one-half cents a cubic centimeter for vaccinating, netting the veterinarian, calculating the cost of serum at one and a quarter cents, about $12.00 per hour and in some instances more than a hundred dollars a day.

About the same time the Nebraska and Iowa farm bureau organizations were considering the feasibility of employing county veterinarians as they employ county agents and probably under the general supervision of the latter. The members of at least two county farm bureaus in Illinois have actually taken this step, rather however, as individuals than as an organization.

Many other illustrations could be cited, but the foregoing are sufficient to indicate an unsettled condition, of which nearly all veterinarians are aware, due to the chaos that obtains in the practices and prices of vaccination of hogs for the prevention of cholera and other swine infections, not in isolated cases but over large areas.

The best interests of the veterinarian, the county agent, the farm bureau and the farmer himself, are identical in the matter of anti-hog-cholera vaccination, and where they do not agree, one or more constituents of the group is unreasonable or unfair, or perhaps as is more often the case, there is simply a misunderstanding among men of good intentions.

Mr. Bryant apparently sees nothing out of the way in a veterinarian's driving 24 miles and vaccinating his hogs for five dollars, but he is a city farmer. The genuine farmer is not looking for veterinary service at this price, and no farmer will continue to get good veterinary service at this price. No veterinarian can keep abreast of his profession or take a pride or interest in his work who values his services so low. In the long run, his services are going to be mighty costly to those who employ him. There are examples innumerable to substantiate this fact; it is inevitable.

On the other hand, the charges in the instances cited by the *Prairie Farmer* are just as unreasonable. Such practices are an injury to the veterinary profession of

the state and are not countenanced by it. They would not be tolerated by the state association in its members if brought to the attention of the association. We do not blame the *Prairie Farmer* for objecting. The *Prairie Farmer* is a champion, we think the best champion, of the farmers' interests in the state, and in championing the genuine interests of the live stock industry, it has championed the best interests of the veterinarians of the state, and for that we owe it much. We shall not soon forget its powerful aid in putting the skids under Dr. Nolan, and sending him to greener pastures, or its exposure of other fake stock remedy concerns. What it says about the prices some have charged for vaccination is no doubt true; there are 1,500 veterinarians in the state, and it would be strange indeed if there are not some who violate the code of the profession. Would the editor of the *Prairie Farmer* undertake to say that among 1,500 farm editors there are none who serve their readers falsely? Would he not resent farm papers as a class being reproached with the shortcomings of the unworthy?

The implication that there is a veterinary trust in this state or any agreement to hold up prices or any concerted effort among the veterinarians of the state to prevent certain persons from engaging in hog vaccination that they themselves may monopolize the work and thus boost prices, is wholly and absolutely untrue. It is unjustly false and unworthy of a high-class farm paper.

It is true that the state veterinary association in Illinois is on the watch for the appearance of unlicensed men engaged in the vaccination of hogs or other veterinary work. It is true that about seventy such men have been arrested, prosecuted, fined, put out of business within the past two years because of its efforts in this line. But the only object the state association has or has had in instituting prosecutions against unlicensed men is the protection of the live stock industry. The growth and welfare of the live stock industry directly affects the veterinary profession of the state. It is idle to say that the veterinarians of Illinois as a whole, than whom the veterinarians of no other state are better established in their practices or more competent to handle them, are concerned over the competition of a few or even a hundred unlicensed, incompetent and in many instances disreputable and itinerant empirics. But they do object to these men falsely posing as veterinarians and by their methods, their appearance and their ignorance bringing discredit upon their profession and harming the live stock industry of the state, which is very dear to veterinarians, for upon it their welfare and prosperity absolutely depend. The unqualified men are a far greater menace to the farmers than they are to the qualified veterinarians, and the farmers derive a great deal more benefit from their prosecution than do the veterinarians.

Veterinarians cannot too soon or too earnestly give their attention individually and as associations to meeting the dissatisfaction that it must be acknowledged exists among the farmers in not a few localities in the matter of anti-hog-cholera vaccination. A veterinarian's practice can continue and increase only as it is profitable to his clients. It will keep up to standard and improve and in the final analysis be profitable to his clients only when it is profitable to himself. There is too much aimless drifting in the present policy of handling this work.

The price for vaccinating hogs can never be the same with all veterinarians, the same quality or amount of service is not rendered by all nor are conditions the same. On some farms there are few hogs and on others there are many. Some farmers will have their hogs penned when the veterinarian arrives and ample help; others have them corralled in a 160-acre pasture and expect the veterinarian to run them down alone. One is called to vaccinate by some when the hogs are well and thriving when sufficient serum can be taken and the work done in a single trip. By another a veterinarian may be called to sick hogs where much study is required and several autopsies must be held and the vaccination perhaps done only a part at a time. Some veterinarians make one to several trips to each herd after it is vaccinated to observe its progress, while others depend upon the owner to keep them informed of the conditions. Some veterinarians pay two cents and some three cents a cc. for their serum, and counting the cost of refrigeration and the loss from occasional breakage and from unused portions of bottles, figure that by the time the serum is

injected, it costs them 25 per cent in addition to these prices, and from experience they believe it is worth all it costs and more. Others are wholly satisfied with serum they purchase as low as one and a quarter cents and some save and use left over portions of bottles.

The price for vaccination cannot be standardized on a single level, but veterinarians must, and it is simply imperative that they do, give this matter consideration, discuss it among themselves and iron out some of the inequalities that admittedly now exist. Any other policy is going to result in even more chaotic conditions than those that at present obtain, and the upshot of it will be that anti-hog-cholera vaccination will be in the hands of others than local practicing veterinarians. That this will be bad for the local veterinarian needs no substantiation; and it cannot work out well for the farmer. The treatment and prophylaxis of swine diseases is primarily a matter of diagnosis. This places it in the hands of the veterinarian. In other hands, it will be poorly done in so many instances that in the long run the loss will be heavy.

The employment of veterinarians by county bureaus on full time salary can hardly be economical. Vaccination does not spread itself over the year that way, and at the prices farm bureaus are likely to pay, the lack of experience of most of the veterinarians that they will get, will be such that the members themselves will not be willing to trust them with all of their veterinary work. A practicing veterinarian, if the vaccination of hogs is taken away from him, will have to charge more for his other work, and in the end the farmers will be inadequately supporting two men to do one man's work, and the inevitable result of inadequate remuneration will be a lower standard of work.

Dr. Thomas Edward Munce was recently appointed state veterinarian of Pennsylvania to succeed Colonel C. J. Marshall, who resigned to devote his time to the professorship of theory and practice of veterinary medicine at the University of Pennsylvania. Dr. H. R. Church of Wilkes-Barre was appointed deputy state veterinarian to succeed Dr. Munce.

RECURRENCE OF HORSE PLAGUE

Local newspapers in western Kansas and eastern Colorado have carried during the past few weeks numerous accounts of the loss of horses presumably from the "horse plague" which resulted in the death of 20,000 horses in Kansas, Nebraska, Colorado and Iowa in 1912. In the 1912 outbreak a great deal of excitement was produced by sensational accounts in the newspapers and numberless fakers, a few of them with veterinary degrees, flocked to the affected regions and reaped a harvest

Fig. 1.—Early stage in the cases characterized by stupor rather than excitement in the recent outbreak of horse plague in the Arkansas River Valley, Colorado.

by preying upon the credulity and panic of unfortunate livestock owners. After the outbreak was over, it was estimated by competent observers that 25 per cent of the loss (approximately 5,000 horses) was the result of harmful medication. The judgment of qualified veterinarians at the time and since was that the trouble was simply an unusually virulent type of forage poisoning, whatever that may be, and that the cause was and still is unknown.

The present outbreak has received much less attention in the newspapers than the former. However, it appears to be almost as virulent as the former was in the beginning of the outbreak. It may or may not approach the 1912 outbreak in the magnitude of the losses it occasions. Dr.

A. T. Kinsley of Kansas City, who has been on the ground and given attention to the present outbreak since its first occurrence and who saw perhaps as much of

Fig. 2.—Nearing the end in a case characterized by great excitement and violent struggling. Note the bruising from pushing the head into the corner of the stall and the dilated nostrils indicating a labored respiration.

the 1912 outbreak as any one else, writes the following concerning the present outbreak:

The so-called epizootic spinal meningitis or forage poisoning has made its appearance in the Arkansas Valley in Colorado. The disease is not confined to the bottom land, but extends north and south and up to the present time is found over a territory fifty to one hundred miles north and south and about one hundred and fifty miles east and west.

This outbreak is not so destructive as the 1912 outbreak, as about fifty per cent of the cases recover in the present outbreak under proper medication. Horses and mules of all ages regardless of the condition of flesh, feed, sanitary surroundings or service, are affected.

The usual symptoms consist of incoordination, stupor and paralysis. There is usually pharyngeal paralysis in the beginning. There may or may not be impairment of vision and a lack of cutaneous sensation. The temperature in the beginning ranges from 104° to 106° F. The pulse is usually full and strong and becomes weaker as the disease progresses. The lips are paralyzed in the majority of cases and the animals can not prehend. Usually when food is placed in the mouth the affected animal will masticate and in some instances seems to be able to swallow. There are petechial hemorrhages of the ocular mucosa which later becomes icteric or of a gray color. There is invariably a diminished peristalsis and in the majority of cases there is a suppression of the movement of the bowels. The course of the disease is variable, some cases dying within 48 hours after the onset, others lingering for five or six days, or even longer, before death ensues. This disease has all the appearance of a toxemia, but indications are that it is of an infectious nature and the infection is probably taken in with the food or drink.

This particular outbreak does not have the leading symptoms and characteristics of botulism, although it may be found later to be due to infection with the B. botulinus. There has been no specific found that will control this disease. The practitioners in the section of the country where the disease now prevails are medicating by means of the stomach tube. They administer large doses of saline purgatives with large quantities of water. Hypodermic injections of strychnin and arecolin also seem to be of value. Such cases should be observed at least every 24 hours and water and feed administered by means of the stomach tube. An apparent means of prevention consists of the administration of some purgative to all animals on farms where the disease prevails or to animals in the territory where the disease has been found.

Fig. 3.—The coma preceding the end.

A similar condition has recently been reported as occuring in Wisconsin.

Should any of the readers of the Journal have definite information, we shall be glad to hear from them.

COMING MEETINGS

Northwestern Illinois and Southwestern Wisconsin Veterinary Medical Association, Freeport, Ill., October 8th and 9th.

Eastern Iowa Veterinary Association, Muscatine, Ia., October 8th and 9th.

American Veterinary Medical Association, New Orleans, November 17th to 21st inc., 1919. Headquarters, Grunewald Hotel.

Veterinary Medical Association of New Jersey, Trenton, N. J., January 8, 1920.

Making the Army Safe for the Horse

The above is the title of a splendid article by Lieut. Colonel Gerald E. Griffin, V. C., U. S. A., in the September issue of the *National Humane Review*. The article supplies information not heretofore available to the general public on the formation, duties and activities of the veterinary corps of the army and must undoubtedly result in a higher appreciation of the services of veterinarians in the army by humanitarians who constitute the readers of the *National Humane Review*.

A number of paragraphs in this article by Colonel Griffin bear upon subjects upon which there is still discussion among the recently discharged officers and are worth calling to their attention. Among such the following may be cited:

The veterinary training school established at Camp Lee was given the problem of training to solve. It is believed that the problem was solved to the satisfaction of the War Department, and the Surgeon General. It would be vain to say that mistakes were not made in the solving; mistakes were made, but taking into consideration the character of the instruction, and the rawness of the material to be worked on, the mistakes made appear now to be few in number and not of a serious nature.

The training school at Camp Lee had a capacity of 100 officers and 2,400 men, but the pressure for units became so great that 312 officers and 5,421 men had to be taken care of there at one time.

Our officers were carefully instructed in the duties pertaining to their office, from "Left face" to taking a four-foot hurdle while mounted. The younger officers absorbed military information and training rapidly. The old adage holds true however: "You cannot teach an old dog new tricks," for when a new officer had reached the age of from 33 to 35 years it was extremely difficult to teach him things of a military nature. For this reason it was the younger officers who, as a rule, were given command of units, the older officers having to take second, and even third place.

Each and every officer who reported for duty at the school was given an opportunity to show his ability along the lines laid down. A substantial reward awaited those who "made good."

It may cause surprise to learn that commissions in the higher grades went begging at the training school, and that the ability to handle men, take care of them—morally and physically, and hold them in discipline—is not possessed by the average man, nor is it an easy matter to develop it in eight weeks.

There were sent overseas from the school: 15 veterinary hospital units, 1 base hospital unit, 6 corps evacuation units, and 3 army evacuation hospital units, and several replacement units, consisting of a total of 393 officers and 7,968 men.

Army Veterinary Service

From the Office of the Surgeon General

Lieutenant Colonel John H. Gould, Veterinary Corps, has been ordered to report to the Commandant, General Staff College, for assignment to duty to take the course at the college. The co-operation and functioning of the Veterinary Corps with all other staff departments in the movement of troops is most essential, and it is important that veterinary officers be trained with other staff officers for this duty. The care of sick animals with combatant troops, the evacuation of animal casualties and hospital arrangements for their treatment are very essential features for the successful operation of armies, as experience has demonstrated in France. Lieutenant Colonel Gould only recently returned from France. He was division veterinarian, 88th Division, until December 15, 1918, when he was made chief veterinarian, Second Army, and, upon its disbandment, was transferred to the Third Army (Army of Occupation) as chief veterinarian and served in this capacity until his return to the United States.

"Appointment of Emergency Officers"

"The Chief of Staff has approved recommendations of the Director of Operations, General Staff, providing that in filling such vacancies for commissioned officers as may be provided by legislation reorganizing the permanent military establishment, it is the policy of the War Department to select appointees from among persons who served as emergency officers between April 6, 1917, and Nov. 11, 1918. Upon enactment of legislation, emergency officers still in service having approved applications on file will be examined for appointment without further action on their part. Upon enactment of legislation, former emergency officers who have been honorably discharged and in whose cases there are approved applications

on file will, if eligible, be communicated with to ascertain if they still desire appointment and will be examined if they so desire. Former emergency officers who have been honorably discharged, but who at time of discharge or prior thereto, did not express desire for permanent appointment may make application for examination. Persons other than emergency officers may be eligible under such legislation as is enacted, may make application for examination and will be examined if recommendations and records are satisfactory.

Colonel C. F. Morse, M. C., Director, Veterinary Corps, U. S. Army, Surgeon General's Office, Washington, D. C.

"No applications, other than from emergency officers still in service, will be considered or filed at this time. Regardless of such preliminary or other examinations as may have been held, no appointment will be made without a thorough and satisfactory final examination. The final examination will be such as to establish the mental, moral and physical qualifications of appointee. Candidates will be examined for army service selected by them, within limits of legislation. Examinations will not be held for a particular grade. Examining boards will be permitted to recommend a suitable grade or grades for appointment, but all candidates will be examined with the understanding that the grade in which appointment is tendered will be determined by the War Department from consideration of age, length and character of service and recommendations of boards."

Comment

The above quoted article was published in the Army and Navy Journal, August 16, 1919. It is the first authoritative information that has been given out by the General Staff regarding the proposed plan for the appointment of emergency officers to the Regular Army.

It will be noted in the first paragraph that everything depends upon enactment of legislation by Congress. Until army reorganization plans are definitely decided upon by the military committee and passed by Congress, the number of vacancies and grades that will be open in the Veterinary Corps can not be stated.

Veterinary Corps Commended

It may be of interest to our readers to know that the Veterinary Corps in France, in spite of its shortcomings which have been heralded throughout the country, did so excellent work with the American Expeditionary Forces and this was appreciated by commanding generals, as the following copy of a commendation will show. It may be stated also that Major General Robert L. Howze is one of the most prominent cavalrymen in the army and is now in command of the Mexican border patrol with station at El Paso, Texas.

HEADQUARTERS THIRD DIVISION
A. P. O. 740 A. F. I. G.

August 6, 1919.

From: Robert L. Howze, Major General, Division Commander.

To: Jesse D. Derrick, Major, V. C., Division Veterinarian.

Subject: Commendation.

1. The 3rd Division easily won the IV Corps Animal Transport show, and now are reported by the Remount Service as being in a finer condition than any other animals received by them. This indicates that the animals of this division were brought to the standard of excellence. It is therefore fitting that those responsible be commended.

2. The scarcity of replacements during active operations resulted in this division arriving in Germany with many mangy and debilitated animals. Due to the efficient services of the veterinary officers and enlisted personnel, mange was eradicated, and such animals as were not evacuated, promptly returned to the service.

3. Those officers deserving particular mention are Captain William C. Keck, V.C.; 1st Lieut. Lloyd J. Brown, V.C.; 1st Lieut. R. M. Sarde, V.C., and 1st Lieut. Thomas A. Breen, V.C. These officers during active operations in addition to their veterinary duties, constantly inspected and supervised the horse lines, encouraging and assisting the men in caring for the animals. Since in the occupied area Captain Agustus Duncan, Inf., Animal Inspector, 6th Infantry Brigade, has rendered service of the highest character.*

4. Those enlisted men deserving particular mention are Sgt. 1/cl. Matt A. Ellis, Sgt. James H. Rudd, Corporal William Sherman Page, Corporal Ernest L. Tompkins, Farrier Melton T. Hogan, Farrier Burl Hinds, Farrier Harry J. Stebbins, Farrier William Peter Weber, Horseshoer William W. Woods, Pfc. Dalton D. Long, Pfc. Ira R. Lambert, Sgt. 1/cl. Ellis with the Office of the Division Veterinarian carefully carried out instructions, displayed accuracy in making reports and cheerfully did anything he could to coordinate the work of the Veterinary Corps. The above enlisted men rendered intelligent and efficient assistance to their officers and of

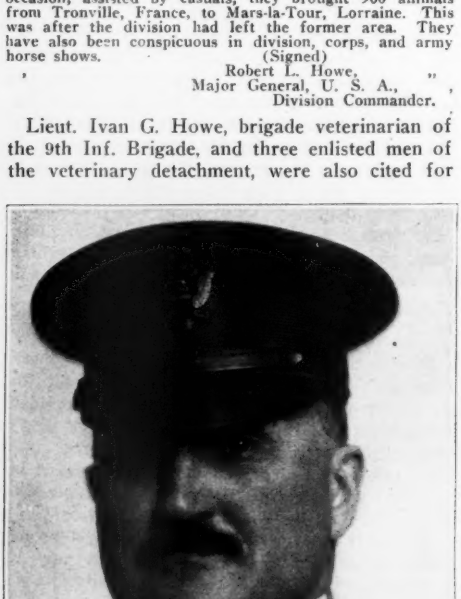
*Captain Duncan, an Infantry Officer, was assigned to this Division as remount officer and by orders of General Howze was directed to report to the Division Veterinarian for duty.

their own accord performed many secondary duties, resulting in the saving of many animals and in the improving of the condition of others.

5. The 3rd Mobile Veterinary Section in addition to evacuating sick and wounded animals has also rendered valuable service in bringing up replacements. On one occasion, assisted by casuals, they brought 900 animals from Tronville, France, to Mars-la-Tour, Lorraine. This was after the division had left the former area. They have also been conspicuous in division, corps, and army horse shows.

(Signed)
Robert L. Howe,
Major General, U. S. A.,
Division Commander.

Lieut. Ivan G. Howe, brigade veterinarian of the 9th Inf. Brigade, and three enlisted men of the veterinary detachment, were also cited for meritorious service and devotion to duty during the St. Mihiel and Meuse-Argonne offensives by command of Brigadier General Castner.



Major R. J. Stanclift, V. C., Technical Adviser to Director of Veterinary Corps, U. S. Army, Surgeon General's Office, Washington, D. C.

Officers Veterinary Corps, U. S. Army

	Aug. 11, 1919	Sept. 11, 1919
Colonels	0	0
Lieutenant Colonels	5	5
Majors	54	47
Captains	119	90
1st Lieutenants	255	187
2nd Lieutenants	178	109
Totals	611	438

Major Olaf Schwarzkopf, V. C., Regular Army

Major Olaf Schwarzkopf, V. C., R. A., was retired from active service August 19, 1919. During Major Schwarzkopf's military and professional service he was ranked as one of the foremost veterinarians in America and upon his retirement at this time it seems appropriate to present a brief resume of his active career.

His elementary education consisted of nine years' course at the German Gymnasiums at Bromberg and Thorn where Latin, Greek, French, higher mathematics, general history, etc., were obligatory.

Graduating from the Gymnasium at Thorn, he entered the Royal Veterinary College, Berlin, Germany, in 1875, and received his degree from this college in 1880 after a five years' course in veterinary medicine. From graduation until 1885 he was in active practice in Germany.

In 1885 he came to the United States to act as assistant to Professor F. S. Billings, V. S., New York City. He entered the United States army in February, 1886, as veterinarian, 8th U. S. Cavalry, stationed at that time in Texas and served for four months at the end of the Geronimo campaign. In 1888 the 8th Cavalary made the longest march on record in the United States army to date, when it marched overland from Fort Davis, Texas, to Fort Meade, South Dakota, a distance of two thousand miles. Dr. Schwarzkopf was a member of the command. He resigned as veterinarian, 8th Cavalry, January 1, 1889, to accept the chair of professor of veterinary medicine at the Agricultural College, State University of Minnesota. He remained there until 1894 when he was appointed dean, McKillip Veterinary College, Chicago, Illinois, at which place he stayed until 1896. In 1897 he was appointed professor at the American Veterinary College, New York City, and remained at this institution until 1900. He was re-appointed to the army as veterinarian, first class, in July, 1900, and assigned to the 3rd Cavalry, for duty. He served with the 3rd Cavalry in the Philippines from 1900 to 1902, taking part in the campaign in northern Luzon. In 1901 when the army was reorganized, Dr. Schwarzkopf was appointed veterinarian of cavalry and continued to serve with the 3rd Cavalry until 1913. During his service with the 3rd Cavalry they had a second tour of duty in the Philippines from 1905 to 1907. In 1913, Dr. Schwarzkopf was detailed as veterinary instructor, Department of Hippology, Mounted Service School, Fort Riley, Kansas, and when the army schools were discontinued due to the Mexican border trouble in 1914, Dr. Schwarzkopf again returned to the 3rd Cavalry for service in Texas until 1916. From April to August, 1916, he was recorder for the Board of Veterinary Examiners to examine all veterinarians for commissions in the Veterinary Corps organized under the Act of June 3, 1916.

He was commissioned captain in the Veter-

inary Corps, United States Army, June 3, 1916, and promoted to the rank of major on September 14, 1917. In May, 1917, Captain Schwarzkopf was ordered to the Medical Supply Depot, St. Louis, Mo., as officer in charge of veterinary supplies and organized the veterinary division of this depot. He was stationed here until May, 1918. He was transferred to Fort Snelling, Minn., in June, 1918, as post veterinarian, and was at this station until September, 1918, when he was transferred to Fort D. A. Russell, Wyoming, for duty as post veterinarian, and was on active service there until his retirement on August 19, 1919.

Major Schwarzkopf has been a generous contributor to the veterinary journals and live stock periodicals on all matters pertaining to the profession and live stock interests. He has always been active in advocating proper recognition for the army veterinary service. In 1887, while at Fort Clark, Texas, he wrote an article entitled "The Necessity of an Organized Veterinary Corps, United States Army," and its recommendations are briefed as follows:

1. The Veterinary Corps to be attached for administrative purposes to the Medical Department of the army.

2. That there shall be three classes of officers:

(a) First lieutenant mounted.

(b) Captain, mounted, after ten years' service upon passing professional examination for promotion.

(c) Major, mounted. Chief of the Veterinary Corps to be attached to the Office of the Surgeon General of the Army.

3. The number of veterinarians to be 40, including all grades. It must be a source of great satisfaction for Major Schwarzkopf to see the Veterinary Corps being organized as part of the Medical Department along the lines proposed by him in his first article.

Some of the articles written by Major Schwarzkopf are given below:

1. The Effect of Loco-weed.—A. V. R., July, 1888.

2. National and International Meat Inspection.—Proceedings, U. S. V. M. A., October, 1890.

3. American Veterinarians Be Watchful (Horse-breeding).—A. V. R., July, 1897.

4. The Revival of Horse-breeding.—A. V. R., August, 1897.

5. The Future of the American Veterinary Profession.—A. V. R., August, 1897.

6. Docking of Horses for Fashion's Sake.—A. V. R. October, 1897.

7. Veterinary Education in New York State.—A. V. R., March, 1898.

8. The True Story of the Army Veterinarian.—A. V. R., August, 1898.

9. The Treatment of the U. S. Army Horse in the Cuban War.—A. V. R., December, 1898.

10. The Army Beef Inquiry.—A. V. R., April, 1899.

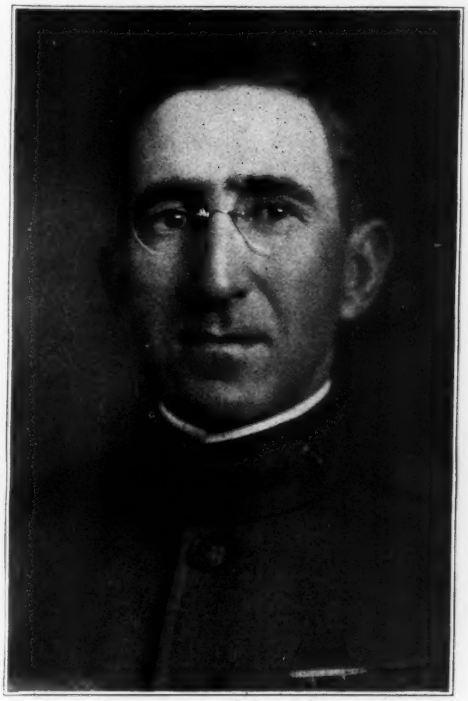
11. The Schmidt Treatment of Parturient Paresis.—A. V. R., June, 1899.

12. Military Veterinary Hygiene.—Journal, U. S. Cavalry Assoc., July, 1904.

13. The Structure and Function of the Horse's Back and Its Relation to the Form and Use of the Military Saddle.—Journal, U. S. C. A., Sept., 1910.

14. The Hygiene and Treatment of the Horses at the Maneuver Division, Texas.—Journal, U. S. C. A., March, 1912.

15. The Changed Status of the Horse in War.—Journal U. S. C. A., Dec., 1915.



Major R. J. Foster, V. C., Veterinary Corps, U. S. Army, Surgeon General's Office Washington, D. C.

16. The Convincing Reasons Why the Need for the Passage of the Army Veterinary Service Bill Is Urgent at This Time.—A. J. V. M., January, 1915.

17. The Mind of the Horse.—A. J. V. M., August-September, 1919.

Translations from the German for the Military Information Division of the General Staff:

1. Measurements of Breeding Horses and Army Horses.—By Professor S. Nathusius.

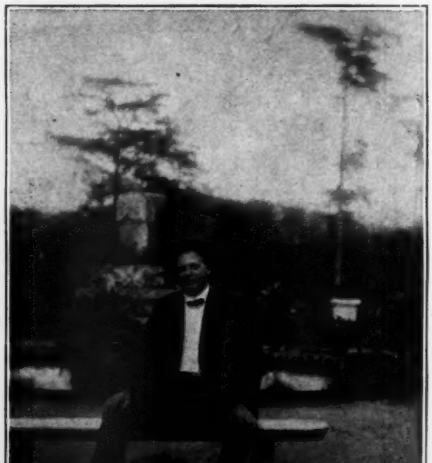
2. Packing of the Field Saddle.—March, 1907.

It is with keen regret that the Veterinary Corps sees the passing from active duty of a

man who has always given his untiring energy towards the advancement of the veterinary profession in the United States and the veterinary service extends to Major and Mrs. Schwarzkopf their very best wishes for a long and happy life.

LIEUTENANT SHAND RETURNS FROM CHINA

First Lieutenant J. R. Shand recently visited friends in Chicago on his way from Tientsin, North China, to Camp Dix, where he is assigned to the veterinary corps. This is the first visit of Dr. Shand to continental United States since his graduation at the Chicago Veterinary College in 1907, immediately following which he proceeded to the Philippines where he



Dr. J. R. Shand.

served as veterinarian in the quartermaster corps of the army for seven years, except for a short intermission when he was engaged in practice in Australia. From the Philippines he was assigned to service with that portion of the American army stationed at Tientsin, where his duties consisted largely of the inspection of meat purchased in Manchuria and Shantung for the American army in China and the Philippines. He also supervised the disinfection of hides, pelts and bristles shipped to the United States from North China. His experiences during this period of twelve years in the far east were most unusual and certainly have not been duplicated by any other American veterinarian. Occasional articles from his pen have been published from time to time in the Journal. An additional record of some of the unusual things that he saw of general veterinary interest will be published in forthcoming issues.

MORE ARMY VETERINARIANS NEEDED

A recent Associated Press Washington dispatch states that more than 15 per cent of the permanent officers of the veterinary corps of the army have resigned since January of this year. The total authorized number of officers of this corps under the national defense act of 1916, is 118, and the loss of these officers at this time is considered serious. The men who resigned all held the permanent rank of second lieutenant, and temporary commissions of major, captain and first lieutenant.

It is estimated that pending army reorganization and to meet temporary conditions up to June 30, 1920, there will be need for a minimum of 350 veternarians. Public animals are perishable property and adequate veterinary attention is necessary from an economic standpoint.

WHY GENFRAL PERSHING'S HORSE WAS HELD IN QUARANTINE

"Kidron," the horse that General Pershing rode to victory in the world war, began his career as a laurel wreath collector by getting in quarantine.

It is not that "Kidron," so far as anybody knows, has any infectious disease, but simply that he may have any equine disease, he must stay at the port of entry for five months, until the government veterinarians know that he is a safe animal to be at large. Kidron will remain at Newport News for 140 days.

The position taken by the Department of Agriculture is that, under no circumstances, can sentiment be permitted to interfere with the protective measures that have been worked out, slowly and sometimes precariously, for the protection of the live-stock interests of the country. "Kidron" might possibly be affected with glanders or farcy, dourine, distemper or strangles, epizootic lymphangitis, or some other disease which may or may not be present in the United States. But, whether or not the disease that he might have exists at this time in this country, the probability would be that, traveling around the country as he would, any contagion carried by the horse would be spread by him to such an extent that it would cause possibly millions of dollars of damage.

"Kidron" would have been rather an exceptionally dangerous horse to turn loose. The private's horse is picketed up at the front or at camp, under the supervision of the army veterinarians, and is pretty carefully guarded from

(*Continued on page* 512)

DEPARTMENT OF

BOVINE PRACTICE

Edited by JOHN FRANCIS DE VINE, D. V. S.

Puerperal Septicemia

Under the classification of puerperal infection I stated in my first article that I questioned if such ailments as parturient paralysis, (milk fever) and puerperal eclampsia rightfully belong in this class, but there are however several acute septic conditions that plainly belong in this category, such as acute metritis, metro-peritonitis, purulent mammitis and the particularly acute and fatal condition which has been styled puerperal septicemia.

Veterinary literature as far as I know does not attempt to define puerperal septicemia, but the veterinary practitioner who is doing much obstetrical work with pure-bred cattle all too frequently meets with a puerperal infection often rapidly fatal which cannot be justly classed as a specific metritis, peritonitis or metro-peritonitis, either by clinical symptoms or post-mortem findings.

Puerperal septicemia is rather a convenient term to express a septicemia or bacteremia usually of a febrile nature but occasionally nonfebrile, originating from an infection of the generative organs of either exogenous or endogenous origin, associated with the puerperal state. It is essentially an infectious wound disease or bacteremia due to an invasion of the blood stream by bacteria. Most often a streptococcus is the causative factor but the pneumococcus, the staphylococcus, the bacillus pyocyaneus, the bacillus aerogenes capsulatus, the Bang bacillus and others have been found.

Entrance to the blood stream is gained in two ways; via the lymphatics and the blood vessels and sometimes by both ways at the same time. The mode of invasion seems to produce different degrees of severity, the vascular form usually beginning at the placental site and being more acute in type. Septicemia may follow an insignificant lesion at any part of the genital tract. The general resistance of the patient, however, is a very important factor in puerperal septicemia.

The most common causes of puerperal septicemia are retained placentæ, either when allowed to decompose, setting up a severe metritis, or an improperly handled retained placenta where force has been used to separate incarcerated chorionic tufts from the cotyledons. In discussing acute endometritis we will mention this danger especially to pure bred or high grade delicate cows. While puerperal septicemia may and does occur as the result of a decomposing fetus, incarcerated in the uterus from torsion or otherwise, or from laceration and infection, in cases of dystocia, still by far the greater number of cases that have come under my observation have been due to the forceful separation of the membranes, leaving a ruptured capillary to grasp and circulate the uterine sepsis and it is in these cases that death often occurs, without the pronounced clinical symptoms that ordinarily attend puerperal septicemia brought about by decomposing membranes or injuries to the genital tracts from obstetrical or other operations.

Symptoms

It is not an easy matter to describe practically or theoretically where the symptoms of other infections which may precede and lead up to puerperal septicemia give way and those of puerperal septicemia proper begin. I have seen cases particularly in pure bred animals were the membranes have been forcefully removed, perhaps with great care, and the animal appearing for twelve or twenty-four hours in fair health, apparently not much disturbed by the operation, followed by a sudden change, the milk flow entirely suppressed and com-

plete anorexia. These symptoms and pronounced constipation or violent diarrhea may alarm the owner sufficiently to call a veterinarian. Examination would reveal a temperature of 104-5-6° F. with perhaps local or circumscribed metritis confined to the area of the uterus where the membranes had been most adherent. If the uterus is cleaned by hot douching and the animal placed under stimulants, with a few days of this treatment in the sunshine and open, the weather permitting and pasture available, the animal may nibble grass and finally convalesce. Or in the same character of case with perhaps not much more visible proof of severe infection other than a sanquino-purulent collection in the uterus becoming more copius and fetid, the animal will obstinately refuse to take a bit of nourishment of any kind, voluntarily stand about listless or may lie down much of the time; there is usually more or less of a nasal discharge and not infrequently a short painful cough; the eyes become sunken; ears droop; grates her teeth; moans or grunts; and the flesh seemingly melts from her body, death ensuing in from two to ten days, occasionally earlier.

These are the cases where infection probably has been direct into the blood stream, and it matters not how skilled a man may be in removing a placenta or how clean his technic, he is dealing with an infected uterus and resultant cotyledonitis and placentitis or the membranes would not be held; the rupture of a few cotyledon capillaries allows rapid absorption and as stated above the subsequent termination will be determined more by the constitution of the animal than the skill of any veterinarian or all the drugs in the pharmacopeia. If great prostration overtakes her and death ensues early, the post-mortem changes may be so limited that to the inexperienced it would seem incredulous that such mild lesions could have caused such rapid prostration and death; or the pathological picture may be one of a general septicemia involving all visible lymphatic glands, the articulations, peritoneum, uterus and venous thrombi, also may involve the lungs, kidneys, heart and other organs.

In contrast to the symptoms enumerated, following a forcible removal of a retained placenta, we may have an entirely different clinical presentation where septicemia is occasioned by a decomposing afterbirth or tumefaction of the vulva and vagina from laceration and infection. The external genitals may then be swollen and cold to the touch, often becoming black or blue-black in color. If the lips of the vulva are parted, we may find on the walls of the vagina necrotic areas or sloughs of a diphtheritic character associated with a sanguino-purulent discharge of a vile odor.

These and similar cases where metritis or metro-peritonitis is evidenced by the chocolate colored, foul smelling liquid in the uterus, the walls of which are friable and decomposing, are the cases that make pitfalls for those who do not use good judgment in discriminating when a uterus should be douched or when it *should not be* douched.

When a uterus has reached such a condition, douching or any other local application can be of no value and any attempt to treat it locally is quite apt to be harmful. The time to douche a uterus is twenty-four hours after the fetus has been expelled, while it still has life and when hot douching will cleanse it as it would a wound and prevent decomposition, but to attempt to douche or massage a uterus after it has lost tone and already yielded to infection, is bad practice.

Treatment

The essential and only rational treatment is preventive measures. In cases of dystocia only skilled surgeons who understand the necessity of and follow out strict asepsis, realizing the danger of infection to the genital tract, should attempt to give any assistance to the cow in labor, excepting where the simplest manipulation will relieve the dystocia.

In cases of retained placenta, sanitary handling which we will describe under endometritis is both essential and effective.

As to therapeutics, when we anticipate puerperal septicemia or where it has developed it is well to give such service as our experience dictates. Good nursing and good hygiene preferably in the open, are prime factors. Nursing, in addition to making the animal comfortable should be directed to sustaining her strength by nutrition in the way of milk, gruels, and alcohol, supplemented with such drugs as camphor, hyposulphite of soda, nux vomica, and capsicum. Soluble iodin which is said to have value in equine septicemia, we hope to test the merit of, but up to the present time can say nothing definite as to its value.

DEPARTMENT OF

SWINE PRACTICE

Edited by A. T. KINSLEY, M. Sc., D. V. S.

Rickets In Swine Due to Various Causes

During the past six months many cases of weakness, staggering and partial paralysis of the posterior parts, have been recorded as occurring in swine throughout the entire corn belt of the United States. The following extracts from two letters describe this condition, and the reply indicates methods that have benefited such cases.

"Having an extensive practice in swine diseases, we have something unusual in one herd. Our client raised a fine bunch of winter pigs and sold them weighing an average of one hundred pounds. The sows looked fine and farrowed twenty-three spring pigs. These pigs did well until they were weaned and we intended to immunize them. At this time, about the first week in June, two of them were noticed to be a little staggering in their hind quarters. The owner said their appetite was good and they appeared to be feeling fine. I suggested worms, as I have found that many hogs affected with weakness and a staggering gait are improved when treated for worms. These two pigs gradually become worse; one died ten days ago and the other is about dead. They finally lost the use of their hind parts. There are four or five more in this herd that I have observed will sit down if they turn suddenly or probably in running the hind parts will swing to one side. Probably half of the herd is affected with this disease to a greater or less degree as a considerable number of the pigs may be observed to sit down to eat. The ones affected are red and black. The white pigs do not seem to be affected, although they are all running together and have been all the time.

"These pigs weigh about seventy-five pounds but could easily have weighed one hundred and twenty-five if they had been forced in feeding at weaning time when they were given ground corn, shorts and plenty of milk; but since this trouble was noticed, they have not been fed as heavily as before, simply enough to keep them growing. I did not see the pigs until the evening of August 2nd, when I was called to attend a horse with bowel trouble. The pigs appear to be in the best of health and are always eager to get their feed. The hair looks fine; the tails curl; the breath is natural; and I do not think there is any fever. They have a small pasture lot to run in. The owner says he has a sow that had her second litter of pigs five days ago and she is weak and staggering yet, but she does not act like the pigs. We are treating her for worms.

"These hogs have had no biologics of any kind. The owner is willing to have them treated, although he does not want to spend money on experiments. He quit hog raising once and we persuaded him to start again. He says now, 'Absolutely no more.'"

Another veterinarian writes:

"I was called recently to treat some pigs with the following symptoms. The pigs appeared all right the night before and the next morning the owner noticed three or four paralyzed in their hind legs. Some could rise after considerable effort; several walked around with their backs arched and with a stiff gait. The bowels were costive in most cases. I noticed in one particular case that the feces contained strings of mucus. Most of the pigs were willing to eat but seemingly ate with difficulty. There were no other symptoms present, and upon post-mortem examination I was unable to find any disease lesions. The intestines contained no food and there was very little in the stomach.

"History: The owner was feeding wheat bran middlings mixed with water, and the pigs seemed to do very well. He changed to a mixture of wheat, oats and corn and fed them all they would eat, and did not notice any sickness until after they had eaten this mixture for about two weeks. He had nineteen pigs; three have died, and it seems that he will lose several more. It happened that some of the younger pigs did not eat very much of the corn, oats and wheat mixture as they were fed some of the wheat bran middlings, and they were not affected very badly. There are three pigs that the owner said did not eat any of the oats, corn and wheat mixture, and they are not affected at all. The feed looks bright and clean. I have had quite a number of such cases before but usually where a man owns but one pig, and I have always attributed it to the feed. Can this

be a case of forage poisoning caused by the feed being moldy even though one cannot detect it in the ground feed?"

REPLY: The above described cases are not in our judgment the so-called forage poisoning. There are different causes for these conditions. An occasional case may be found where the cause is inflammatory disturbances of the nerves. A few are due to the toxic products of intestinal parasites, and still others appear to be the results of muscular parasites interfering with the activity of the muscles of locomotion.

The largest number of cases, however, in our judgment, are due to dietary disturbances. Whether or not this is secondary to some defect of internal secretion, has not yet been determined. Practically all of the cases that are due to dietary disturbances, are relieved in from three to four days to a week by medicinal treatment with lime salts and especially with phosphate of lime. It is suggested that there be incorporated with the feed of the affected pigs and also with that of the healthy ones, sufficient calcium phosphate so that the pigs will get at least one therapeutic dose each day.

Hydronephrosis In Swine

Recently three lots of hogs were observed in Nebraska that were unthrifty, pot-bellied, and although they had a fairly good appetite, these animals became more and more emaciated and some of them finally died. On autopsy, it was found that the peritoneal cavity contained an excessive amount of fluid and in two instances from one to three quarts of fluid were found beneath the capsule of the kidney.

This condition is probably due to dietary disturbances, the accumulation of fluid being secondary to inflammatory disease of the kidney.

Impetigo of Swine

Bull has recently described an interesting condition in pigs that occurs in South Australia. Some correspondents have reported cases to us, that are similar so far as the plentiful manifestations are concerned, to the disease described by Bull and named by him, impetigo of the pig. The first evidence of the disease is the appearance of minute elevations on the skin, which may be irregularly scattered over the body, head and limbs, but are most commonly observed on the belly, behind the shoulder, on the thigh, and on the outer surface of the neck.

The elevated area later becomes denuded of its superficial epithelium and soon becomes covered with a crust or scab. These skin lesions vary from minute points to areas two-thirds of an inch in diameter. There is usually a slight pruritis, but as the disease continues, diarrhea usually develops, the animal loses flesh rapidly, and dies in a few days of exhaustion.

The exact specific cause has not been identified, but staphylococci, streptococci, and B. enteritidis have been isolated from the blood and tissues of affected animals.

Should any of our readers have opportunity of observing such cases, we should be glad to hear from them.

Scour in Pigs

During the past season many inquiries have been received relative to scour in pigs. In some instances as many as seventy per cent of the pigs farrowed die of this condition. It is just about the time for farrowing of the fall pigs, and the veterinarian should be alert to any condition that may develop, and be informed as to the best methods of control.

Diarrhea or scour in pigs may be of dietary origin or it may be the result of intestinal infection. Scour usually occurs in pigs from one day to two weeks of age, and is fatal in a large percentage of the pigs affected.

Dietary scour is usually traceable to the sow as the pig obtains practically all of its nourishment during the susceptible age from the sow. Fermented foods and excessive feeding of highly concentrated nitrogenous foods at the time or immediately after farrowing is conducive to digestive disturbances in the sow and may result in scour in pigs.

Infectious scour in pigs has apparently been more prevalent this year than in previous years and has been responsible for the majority of the losses of pigs from scour. A variety of germs have been found associated with this ailment in pigs, several of which appear to be factors in causing the condition. The various germs that have been identified in affected pigs have also previously been identified with diseases of swine, such as, hemorrhagic septicemia, swine plague or infectious pneumonia, and so-called mixed infection or necrotic enteritis. The various infectious diseases of swine other than hog cholera were quite prevalent in most sections of the country in 1918, and it is very probable that the infections of those same diseases are now manifesting their presence by the production of scour in pigs.

The symptoms consist of diarrhea, the discharges varying in color from brown or green to yellowish white and in consistency from a thick fluid to a thin watery substance. The evacuations of the bowels are frequent and within a few hours from the onset the pig appears stupid, has an arched back and in the acute cases becomes weak very rapidly and dies in from 12 to 36 hours after the first symptom is manifested. In the acute cases a limited inflammation of various parts of the digestive tube is found on autopsy.

It is not always possible to positively differentiate between pig scour of dietary origin (from the sow) and infectious scour. If all of the pigs that are nursing one sow develop this disease simultaneously and the pigs of other sows, with

(*Continued on page* 512)

Queries and Answers

Practical Methods for Raising a Horse

Please describe a practical method of getting a horse that is unable to rise of its own accord on its feet. With heavy horses, and particularly those that cannot be turned over, it is often worth almost as much as the price of the horse to get a sling under him.—B. C. A.

Reply: Getting a horse upon its feet is often a matter of overcoming the discouragement of unsuccessful attempts and getting him to really exert himself in an effort to get up with a little help at the halter and by the tail. Animals that are down on the street should be freed from the harness and rolled or dragged away from the curb or other obstruction. If the pavement is wet, sprinkling with sand or ashes will give the animal more confidence and assist him not a little in getting and keeping on his feet. To overcome discouragement and getting a horse to exert himself, nothing else equals cocain, but the dose must be carefully graduated. Too little will not bring about the required condition and too much is far worse than none at all. Except in very nervous horses, when the dose should be somewhat lighter, and in dullards, where it may be increased a little, about one-half grain of cocain hypodermically for each hundred pounds that the horse weighs, is the proper dose. With all conditions made as favorable as possible, ten to fifteen minutes after the injection of cocain is given, try to get him up. If he is not able to rise, the chances are at least nine in ten that he is not worth getting up, particularly if he is down on the street. Many city veterinarians use cocain in this way as a diagnostic agent. If the horse gets up and is able to walk away, all right, he is worth treating. If he does not, he is considered hopeless and destroyed. Although a mistake is perhaps occasionally made in this way, in the long run it is the most economical for the horse owner.

Where mechanical means are to be used for raising a horse, a rope is much to be preferred to slings. It is more easily put on the horse and more convenient to handle. The following directions are given by Dr. A. C. Wight, an army veterinarian, for raising a horse:

The only articles required are a block and tackle of sufficient strength to raise the horse, and thirty feet or more of rope, one-half inch or more in thickness. These items can be easily procured anywhere. The block is fastened to the ceiling or any other place above the horse in the usual manner.

The rope is handled as follows, first being doubled:

1. Pass the doubled end of the rope over the head backward to where the collar rests on the neck.
2. Pass free ends of the rope between the front legs, crossing it once, just before it goes between the legs.
3. Pass lower rope under body, so that it emerges just posterior to the withers.
4. Lay upper rope over thorax, so as to cross lower rope at this point.
5. Bring lower rope over body and between hind legs.
6. Pass upper rope under body in a position to correspond to the other rope, bringing it back between the hind legs. Cross the ropes at this point.
7. Bring both ropes up over buttocks, one on each side of the tail.
8. Pass forward along the spinal column under the ropes where they cross on the back, and tie to point where the rope lies on the top of the neck.
9. Insert hook of block at point where the ropes passing over the back cross, being careful to engage all the ropes at this point, namely, the single strands crossing to go between the hind limbs and the double strand coming from each side of the tail to the neck.

All ropes should be drawn as tightly as possible before the knot is tied, so that all slack is taken up.

This sling is very easily applied (one man can do it in a pinch) and the horse in his struggles cannot fall out of it. The body is always right side up, neither end higher than the other, and the feet are always in a positon so that they can be utilized to the best advantage.

This method is widely used and perhaps is more popular than any other. In addition to its convenience, an advantage is that it holds the horse's legs in the position for standing and is of material assistance to him after he gets on his feet if he be weak or unsteady.

A somewhat simpler arrangement of the rope is the method described by Dr. Willett Tanner, of Saskatchewan, which is said to be equally effective and has been described as follows:

The accompanying illustration will serve to depict a practical and simple method of using a rope to lift a horse that is down. The rope

may be quickly applied and when drawn tightly will serve to suspend a horse long enough for a trial posture.

HEMORRHAGIC SEPTICEMIA SUSPECTED

I lost a sow that would have weighed between 350 and 400 pounds, and she was sick only about three days. She lay around but did not seem to suffer at all. The respiration was normal, but she would not stir nor eat a bite in the three days. On postmortem examination, her lungs were of a purple color and full of a white frosty substance. I found two cysts in the liver, one the size of a goose egg or larger and the other the size of a hen egg, also several smaller ones, which were full of a clear fluid. The kidneys showed many hemorrhages. The blood of the heart was of a very dark color, almost black. The dermis of the abdomen was purple. I had six large hogs with this one, but so far none of them have showed any symptoms of being sick. As I have fifty head of hogs, I should like to know what was wrong with the one I lost. This sow was not bred.

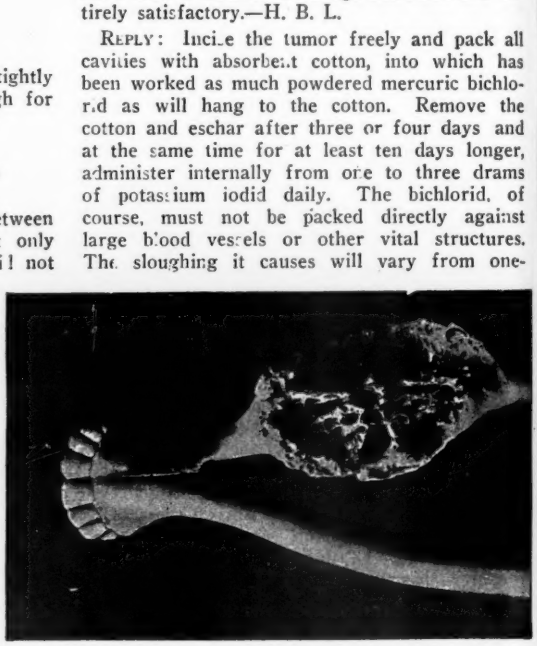
W. D. G.

REPLY:—In the great hog producing sections of Iowa, Illinois and Indiana, the postmortem lesions that you describe would lead one to strongly suspect hemorrhagic septicemia (swine plague), and the history as well might be considered to indicate it. Cholera would have spread to your other hogs immediately. Ascaris infestation is not serious except in young pigs. Hemorrhagic septicemia, while contagious, usually particularly early in an attack, spreads but slowly from hog to hog and does not usually affect the whole herd. Circumstances might be conceived of where but a single animal would be affected. The cysts which you speak of finding in the liver were undoubtedly parasitic and probably had nothing to do with the cause of death. Petechia of the kidneys is found in a number of conditions and may not have been significant in this case. Have you eliminated the possibility of the animal having been smothered? This would account for the condition of the lungs and of the blood.

TREATMENT FOR ACTINOMYCOTIC ABSCESS

What is the best treatment for actinomycotic abscess in the laryngeal region of cattle? I have used a number of drugs but none are entirely satisfactory.—H. B. L.

REPLY: Incise the tumor freely and pack all cavities with absorbent cotton, into which has been worked as much powdered mercuric bichlorid as will hang to the cotton. Remove the cotton and eschar after three or four days and at the same time for at least ten days longer, administer internally from one to three drams of potassium iodid daily. The bichlorid, of course, must not be packed directly against large blood vessels or other vital structures. The sloughing it causes will vary from one-quarter to one-half inch in thickness, and this is safe in most actinomycotic tumors. The combination of escharotic and internal treatment is preferable to either alone, since the eschar removes much of the infection and fibrous proliferation, and at the same time it causes an acute congestion which increases the blood supply in surrounding parts. The internal medication takes care of the foci of infection more remote from the tumor than the parts reached by the bichlorid. The combination rarely fails.



Mandible of ox affected with actinomycosis.—Ostertag.

AILMENT APPARENTLY OF DIETETIC ORIGIN

One of my clients has been having an outbreak among his horses of what I have diagnosed as spinal meningitis, but these cases are twenty miles from the place where there was an outbreak last year and which I reported in the Journal.

On August 12th I was called to see a sorrel gelding, eight years old, weighing 1,400 pounds. The owner informed me he had worked the horse all the previous day on the binder. The horse was fed oats and hay at night and he seemed quite healthy. He drank and ate normally. At 5:00 a. m. the owner came out and found the horse down and unable to lift his head from the ground. I was called at once and found the horse still down; his pulse was normal, about 42, strong and even; also his temperature was normal, 100.5° F. I proceeded to put on the ropes to sling him up (the way described in the Journal, which method, by the way, I have been using since it was first published and find it "out of sight" in every way).

We got him up so that he was hanging in the ropes and he acted just like a dead horse. His head touched the floor, his eyes closed, and in fact he was in an absolutely comatose condition. However, I hit him across the ears and he gradually straightened up and stood perfectly well, eating anything that was offered and also drinking a pail of water. The only peculiar symptom was that he kept the penis protruded and tried to urinate frequently, although on making a rectal examination, I found the bladder empty.

The following day another horse showed the same symptoms exactly. I proceeded to give the treatment recommended in the Journal for spinal meningitis or forage poisoning. These two horses improved every day till yesterday evening (August 20th) when the sorrel horse went down again. They tried to get him up, but he just hung in the slings, they told me, for nearly an hour, and they expected him to die before I got there. When I got there he had just straightened out and was standing normally, both eating and drinking. His pulse and temperature were normal. He seems to be safe so long as he does not go down, but just as soon as he gets down, I believe, he would be dead in two hours if he was not lifted up. All last week he was walked out in the yard every day, and yesterday was the first time they had let him be alone without the ropes on him. That was when he went down. What is this anyway? I have changed the feed and water since these two horses took sick, but it was perfectly good as far as I could see before, and it seems far fetched to call this forage poisoning. How long do I have to keep these horses in slings? It seems to me I have more extraordinary cases in my practice here than anybody else.

N. J. H.

MAMMITIS IN CATTLE

We are having considerable trouble with infectious or contagious mammitis in cattle. I have been using ointments, laxatives, etc. Kindly give me the best treatment.—J. K. B.

Reply: There is perhaps less satisfaction in the treatment of mammitis of cows than in almost anything else the veterinarian is called upon to do. The certain loss of production during the time of the attack and the frequently permanent impairment of one or more quarters of the udder make it dreaded by the dairyman; while the labor involved in treatment and still more the frequent failure of all treatment to affect the course or termination of the ailment make such cases unwelcome to the veterinarian.

Streptococcic and perhaps also staphylococcic bacterins are being used by some with what appears to be good results, and since in reasonable doses they are not harmful, one is probably justified in using them in all cases. One is not justified, however, because bacterins are used, in neglecting other measures of recognized usefulness—a suspensory arrangement to hold up a part of the weight of the inflamed organ, gentle and frequent milking, continuous cold applications and later in the attack hot applications, with the internal administration of belladonna or atropin, to full physiological effect, to decrease secretion, and at the same time free purgation as a detergent of inflammation and to remove toxic products as rapidly as possible; with aconitin and analgesics to lower temperature and relieve pain when indicated. Treating mastitis is no lazy man's task. The reward of industry and persistence in the long run is fair. The penalty of negligence is disastrous.

TAKING THE BRAY OUT OF THE MULE

What is the operation for preventing mules from braying? I have seen a number of references to it in the daily press and in livestock journals. It is said to have been performed on army mules used near the front. I am not using any mules near the front, but I have a jack that seems in mortal danger of being declared a nuisance in my little town. I do not know whether a jack would amount to anything without a bray or not, but if you can give me directions for getting rid of the bray, I will take my chance on keeping what is left. Otherwise, my neighbors will probably get rid of the jack and the bray together.—H. C. L.

Reply: There are two operations for preventing mules from braying. Both are simple and they will probably work equally as well on the jack as on mules. The one usually performed on army mules was to sever the muscles that raise the tail. A mule's tail, you know, has a lot to do with braying. If a mule cannot raise its train, it will not bray; at least that is what the war correspondents say. When the muscles

reunite and the jack can raise his tail again, another operation will probably be in order.

The second operation is a sort of muffler. It does not entirely prevent the braying, but it quiets it or rather renders it about 75 per cent less noisy. It consists in simply slitting the false nostril, the function of which is said to be that of magnifying the sound made by an animal when it brays.

Should both operations fail there is a second caudal operation that can be guaranteed, and in the case of jackasses it is not infrequently indicated. Reference is to the old tail operation for curing a dog of sucking eggs. In this the tail, as you know, is amputated just behind the ears.

Apparently the war correspondents saw more of these operations than the army veterinarians did, since most of the latter, returning from France, say they heard nothing of it on the other side. Won't you and others who try it report results?

SHEEP DIE SHOWING LITTLE EVIDENCE OF DISEASE

I was recently requested to make an autopsy on the carcass of a sheep, a shearling ewe, and see if I could ascertain the cause of death. It was the second ewe to die in the flock and there were two more which were evidently dumpish. Those two sheep died within a day of each other. They were sick only a day before they succumbed, and all that could be noticed were just dullness and dumpishness, not following the flock, eating a little, bowels evidently all right. The last one before it died had some kind of a fit. That is all I could learn of the symptoms.

On autopsy of the last to die (the other had been thrown down an old well), I found the right lung congested, pericardial fluid reddish, no pericarditis, no endocarditis. Both ventricles contained blood clots which were partly at least of antemortem formation. The abdominal contents were normal in appearance. I could see no parasites. The liver was normal. I consider death was caused by congestion of the lungs and heart failure due to pressure of the clots therein. The ewe was thin and had a lamb. I examined the two ewes that were alive and they showed dullness, but could not make out any definite symptoms. I ordered them put by themselves and up to this writing, have heard no more from the farm.—T. M.

Reply by Dr. E. T. Baker: While we are all familiar with the value of "absent treatment," I might say that I have had some cases very similar to yours. The peculiar part of some of mine were that no pathogenic organisms or parasites could be found even by bacteriological examination; therefore, we called it pneumonia, which embraces a number of lesions and is a pretty broad diagnosis to fall back on.

As the Bacillus ovisepticus assumes many varied and aberrant forms, I always suspect these somewhere in the trouble and administer a dose of bacterin. If it is a small bunch of valuable sheep, I give all the bacterin as a precaution; isolate all the healthy from the apparently sick; give a change of feed and water; and administer to the sick ones one c. c. camphor and creosote (made by dissolving gum camphor in beechwood creosote in a saturated solution) in one ounce mineral oil or raw linseed oil three times daily. Hypodermic injections of camphorated oil (10 grains camphor to 5 c. c. oil and ether) are beneficial in extreme weakness. Before our free land went totally prohibition, a teaspoonful of good (?) whiskey in several raw eggs was very strengthening. Until we get a definite diagnosis for this trouble, treatment will have to be symptomatic.

THE PHYSIOLOGY OF "SETTING"

What anatomical and physiological change takes place in a hen when she wants to hatch?

—F. F. D.

Reply by Dr. B. F. Kaupp: When a hen ceases to lay and commences to set the external sex characters undergo a change. In a laying condition her comb was full, red, hot and soft, pliable and oily to the touch. The comb now shrinks, becomes dry, harsh, and covered with whitish scales. The ovary shrinks due to the reabsorption of the yolk material desposited in the ova. The oviduct also shrinks from eighteen to twenty inches in length to four or five inches in length and also shrinks proportionately in caliber. The intestines also shrink in length, in many cases as much as 30 percent. This calls for less abdominal space and as a result the pelvic bones, or pelvic arch shrinks, the pubic bones come closer together, and the breast bone is less dropped from its horizontal position. A bird that has measured four fingers breadth in capacity will now measure three and one that has measured three fingers in pubic span will measure two. The bowel passages are fewer in number in twenty-four hours and greater in quantity of feces. This is due, as we have found in our nutritional experiments, to the slowing of the processes of digestion. Some recent data on this point may be of interest to the readers of the American Journal of Veterinary Medicine. In one series, 21 experiments were run with that number of hens and young chicks to test the time required for feed to pass the entire length of the digestive tract. The birds were fasted over night and the feed was mixed with lamp black which is inert. Other indicators were used but we found that those which had effect upon the intestinal tract or in other ways could not be relied on. All tests show that the digestive processes in the fowl are rapid. The averages ran as follows: Hens in laying condition the food passed tainted in three hours and eleven minutes. Hens not in a laying condition an average of eight hours,

broody hens an average of fourteen hours and forty minutes and in two pound chicks three hours and fifty-two minutes. When a hen commences to undergo the change bringing her back into laying it will require approximately 20 days for the yolk material to have deposited forming mature yolks and during which time the other parts take on the appearance of laying. For a full discussion of this matter the reader is referred to the writer's work on poultry culture sanitation and hygiene. It is too long a story to tell here.

It is found that the setting hen in a resting condition will have a temperature normal to one degree below the normal body temperature. The temperature we have found depends somewhat upon the surrounding temperature. Recently with an atmospheric temperature of 98°F. we found six hens of forty-six had temperatures, at 11 a. m. of 110 to 110.5°F. while these same hens on the measurement day two months before averaged two degrees lower. The average normal temperature of the hen is approximately 107°F. Since the hen in her developmental ascendency in life has come from the reptilian instead of the mammalian line we can readily account for these radical changes. The above tests were among laying hens in perfect health evidenced from the fact that some of the high temperature hens laid that day.

HEMORRHAGIC SEPTICEMIA OR FORAGE POISONING

I recently treated a rather unusual case, which I would like some help in diagnosing. The patient was a gray mare, about eleven years old, weighing about 1,400 pounds, in good flesh and had been worked regularly on the farm. When observed by the owner about 10:30 in the evening, August 7, she was apparently normal. About 5:30 the next morning, he found the mare down, somewhat bruised and apparently unable to rise. After several attempts, she worked herself out of the barn. She was allowed to remain outside, and I was called.

I arrived about 10:00 a. m., August 8. The mare was lying quietly in sternal recumbency, eating hay which had been placed before her. Temperature 102° F.; pulse 70, soft and rather weak; respiration 20. Attempts to make her rise were resisted by the animal lying flat down upon her side. Hypodermic administration of one grain strychnin sulphate had no appreciable effect. The barn ceiling being too low and not strong enough to support her, we rigged a hoist outside on oak poles and raised her to her feet. After struggling and fighting for some minutes, she decided to stand. The sling was removed, and she was walked for ten or fifteen minutes. She showed some lack of coordination but no particular weakness. When the owner attempted to spray her with a fly repellant, she shied and sprang away from him. She limped somewhat on the right fore limb, but this I attributed to bruising during her struggling in the night. When allowed to stand, she would graze, call to her mate in the barn and appeared normal in every respect, excepting that her respiration continued rapid and labored. The day was warm and she perspired freely, but after being up for some time, she dried off except for a patch about eighteen inches in diameter over the posterior thoracic vertebræ, which continued wet until I left. Peristalsis was normal. Her bowels moved freely and she urinated while on her feet.

After being on her feet about thirty minutes, she stumbled and fell as the owner was leading her. She immediately rolled up on her sternum and commenced to graze. She would not attempt to rise, and as she was now some distance from the hoist we had rigged up and in a comfortable position, it was decided to allow her to remain where she was until evening. Her temperature was taken at that time and showed 103.5° F., an increase of a degree and a half in three hours. I prescribed fluid extract of nux vomica in dram doses to be given every four hours and withheld diagnosis and prognosis, but instructed the owner to raise her to her feet again in the evening.

The next morning the owner called me again. He had not attempted to raise her, and said she was much worse. Upon arrival I found her in lateral recumbency, constantly striking and pawing, but apparently unable to gain a sternal recumbent position. When assisted into that position, she would immediately struggle to rise, and throw herself on her side. She showed no inclination to eat. Her fecal and urinary discharges had been normal during the night. Her temperature was 102.4° F., respiration very rapid and labored, pulse about 80, very weak and soft. Stimulants were without effect. I gave an unfavorable prognosis and advised destruction, to which the owner would not consent. He would not, however, procure the help necessary to attempt to raise her again, which I suggested but did not urge as I was sure she would not be able to stand.

The next morning, August 10, he called again, saying that the mare had gotten steadily worse and he had killed her the night before and he would like to have me perform an autopsy. This I did with the following findings.

Body and head, badly bruised from struggling, but not much bloated, although she had been dead for about twelve hours. Blood very dark with a peculiar odor and very little tendency to coagulate. A very dark (hemorrhagic) gelatinous exudate under the skin, especially on the limbs below the knees and hocks. Superficial muscles very pale in color and studded with numerous hemorrhages. Spleen enlarged, soft, friable, but not fluctuating. Lymph glands hemorrhagic. Other abdominal contents apparently normal. Lungs and pleura normal. Heart showed large diffused epicardial hemorrhages on

the atria and a few smaller hemorrhages on the ventricles.

There were four other horses on the place, all of which had been there several years, eight or ten head of cattle and a few hogs. The owner had lived on the place about ten years and has lost no animals from unexplained causes in that time. His barn is small but clean and well lighted and the horses all apparently well fed and cared for.

What is the diagnosis and cause in this case? My theory is that this animal suffered from some form of septicemia caused by the bipolar organism or some other. Is this plausible? Could I have diagnosed it clinically? What treatment should I have used or should I use if any other animal on the place showed suspicious symptoms? What preventive measures if any should the client take besides cleaning up and disinfecting?—R. L. W.

REPLY: Veterinarians seem to classify such cases as forage poisoning more frequently than anything else. Others, basing their diagnosis on the post-mortem findings, have called it hemorrhagic septicemia of the horse, but recognized authorities on pathology are chary of pronouncing hemorrhagic septicemia in horses as an independent disease. Most of those who do contend that hemorrhagic septicemia occurs in horses independently, speak of it as an acute infection practically impossible of differentiation from influenza or shipping fever. It is a little hard to convince an owner that his animal has forage poisoning where the feed looks good to him and is being eaten by other animals without harm. Still, it is believed that such cases do exist. What do readers say of this case and what, if any, treatment was indicated?

TINTING FLEECE OF ANCIENT ORIGIN

Why do so many exhibitors at state and county livestock fairs and at the international livestock exposition color the fleece of the sheep exhibited? Everyone knows the colors are not natural to the fleece, so why this attempt at camouflage?

Reply: Captain Edward N. Wentworth, of Chicago, in a recent issue of the *Breeder's Gazette* gives a very plausible explanation of this custom as follows:

Just previous to, and during, the early development of livestock marketing by railroads, English butchers came to recognize the color of the soil stains on the fleeces of the sheep marketed, as an index of the locality of origin. Since some districts of England have always possessed better sheep than others, it was not long until the local shepherds began accentuating the color with a little ochre, burnt sienna or lamp black, as the case called for. This practice became so firmly ingrained that it was not long until it permeated the showrings.

Hence today the Hampshire wears its red in imitation of the reddish-brown clays overlying the chalk of Hants; the Devon, the bright red in conformity to the reds of the Triassic formations in its native shire; the Cotswold and Lincoln, burnt sienna to parallel the dirty black loams of the fens; the Dorset Downs, a rather less quantity of the same color to match its own limestone browns; and the Suffolk, a red again to equal its iron-stained gravels. All of the colors used, with allowance for some exaggeration, approximate the soil colors referred to.

The fact that the contrast afforded by a good pink skin, a white, bright fiber and a colored exterior is presumed to be particularly pleasing to the judge, even if he smears himself with a beautiful burnt sienna or bright red ochre to find it, and that the additional uniformity of the breed or flock is thoroughly pleasing to the breeder, probably explains the continuation of the custom.

PTOMAIN POISONING OR INFECTION

We have here a disease of chickens which is causing quite severe losses and which I am unable to diagnose to my satisfaction.

It seems to affect both old and young with the most severe losses in the young, but in some cases it is quite a matter of concern and I am appealed to for help.

As to cause I can only say that it seems to be infectious; I have not the facilities for making a laboratory diagnosis.

The young seem to develop a diarrhea at from a few days to several weeks of age while the older fowl seem to become lame in one leg, listless and in some cases develop a diarrhea while in others they seem to gradually weaken and waste away until death.

Some of the older birds die without showing any symptoms; being found dead under the roosts and often when they were quite fat.

In most cases the comb is normal in color at all times until death. Prognosis in the old is very unfavorable after the symptoms show, while the intestinal form in the young seems to respond well to intestinal antiseptics.

Autopsy findings: The liver may be colored from a normal to a very dark green and in some cases is much enlarged and in all cases may contain lesions of a greyish white color and in size from a pinpoint to as large as the end of a thumb where they seem to have coalesced.

The lesions on the intestines may be of the same size but are more of the nodule form and free nodules may be found in different parts of the abdomen especially in the omentum.

These nodules are a little whiter than those of tuberculosis and do not seem to have as well a defined capsule and are softer than tubercules. In the larger one the center may be necrotic and this necrotic center may extend through the intestinal wall.

This necrotic center is from brown to black in color. It appears that sanitary measures are the most necessary part of the treatment and intes-

tinal antiseptics are of value especially in the young. I have failed to find any reading matter that seems to fit these cases and have failed to gain the desired information from other veterinarians. I have not tried any vaccine or bacterin and I do not believe they would be of any use in the severe cases.

One more fact I have noticed is that there seems to be more severe cases on premises where a mixed infection is present in swine, but this is not always the case, so I cannot positively say there is a connection between the two but such seems to be the case.

A positive diagnosis is wished for.—R. E. K., Forreston, Ill.

Reply by Dr. Kaupp: The first thing to do is to have a laboratory diagnosis made and if this disease involves a whole community with chickens at present values it will pay to send a few of the birds to the closest laboratory for study. I wish that some would live long enough to send to this laboratory and if you think they will address the coop to Dr. B. F. Kaupp, W. Raleigh, N. C. prepaying the express. I am very anxious to get in on this trouble.

In an absence of definite laboratory diagnosis, simply shooting in the dark, I suggest the following:

Be sure birds cannot have a chance to drink from stagnant pools. See that wet mashes do not lie around to sour and then the birds eat it. Birds are very susceptible to rotten or spoilt feeds of all kinds and often develop such diseases as limber neck, ptomain poisoning, and diarrheas from consuming maggots from decaying manure piles. This is especially true in hot weather when poisonous products apparently are more largely formed in these decaying animal and vegetable materials. See that the drinking fountains are *scrubbed*, and not rinsed only, once a day. Give permanganate of potash in the drinking water. Secure a pint fruit jar with lid and fill with water. Put in permanganate of potash till there is a saturated solution as indicated by crystals still remaining undissolved in the bottom of the jar. When water is prepared pour enough of this solution in the water to color it a reddish purple.

See that the hens are free from lice and if not dust with some good lice powder. Look at the under side of the perch poles and if you find mites paint once every three days with carbolineum till all have disappeared and none reappear. Give to each 12 hens once a week one tablespoonful of Epsom salt in the drinking water. Also the sulphocarbolates compounds are indicated.

For paralysis in the fowl strychnine is indicated or it may be given in the form of nux vomica. For dosage of drugs for poultry the enquirer is referred to the last chapter of Poultry Diseases.

I would like to have some specimens with full clinical picture and post mortem findings sent to me for pathological study. Secure the specimens from a case that has just died and place in a fruit jar having at least twice as much of a 10 percent solution of formalin as the bulk of the specimen.

It occurs to me that a thorough investigation is needed to make certain that these birds are not getting moldy or musty corn. However I suspect some sort of contagion.

PREVENTIVE MEDICINE

(*Continued from page* 486)

would require that the well animals be removed from the buildings and enclosures in which sick animals are found or in which animals have died of disease, and be not returned until after thorough disinfection of buildings and grounds. Such a procedure is not often practicable and the stock owner is left the alternative of removing the sick or dead animals from the herd to prevent, as far as possible, an extension of the infection.

Whenever an ailing animal is discovered in a herd, it should be isolated immediately. Whether it is an infectious disease, or a disease at all, or to decide as to its treatment, remove it from the well and decide further measures afterwards. If the disease proves to be infectious, it is the duty of the veterinarian to instruct the owner as to what means should be taken to prevent others in the herd from acquiring the same disease.

The proper disposal of dead animals, is of great importance, particularly in infectious diseases. It is the custom with many stock owners to take the carcass to some out of the way place and let it decompose, or to throw it into some stream if such is near by. This procedure is a criminal act, just as certainly as theft is, because it exposes his neighbor's animals to the infection, which may be carried by the various scavengers.

There are three methods of disposing of the carcass:

1. Burying;
2. Cremation;
3. Reducing, rendering, or reclamation plants.

If the carcass is buried, it should be placed at least six feet below the surface, and before the opening is closed, it should be covered with from one-half to one bushel of quick lime per one thousand pounds weight.

Cremation is a better means of disposing of the carcasses of animals that have died of such diseases as anthrax, and which may be as easily and more thoroughly disposed of than by burying.

Only recently has it been urged from various sources that these carcasses be not buried or cremated, but taken to a reducing plant and converted into useful products. Where this method is carried out, the conveyors of such carcasses must be so constructed that there is no danger of spreading the disease along the route, and the carcass so sterilized that there is no danger of using the product derived from it.

The value of quarantine is so well known that it is not necessary to discuss it here. Suffice to say, the regulations must be reasonable, practical and then rigidly enforced.

SCOUR IN PIGS

(*Continued from page* 504)

which they are associated, remain healthy, then the chances are that the source of the trouble has been the milk from the sow. If a few associated pigs from different litters of individually fed sows develop the disease simultaneously or in close succession, the chances are that the disease is of microbian origin.

It is far better to prevent this disease in pigs than it is to cure the pigs after they become affected. The diet of brood sows should be carefully regulated and only feeds of proved value should be used and the sow should be given a very light diet at the time of farrowing and for a few days thereafter. Good sanitary pens and houses should be provided during the farrowing season and the individual farrowing house is advisable to prevent the spread of any possible infection that may develop. All pigs that die should be buried or burned.

The giving of medicine to pigs is difficult, and the value of usual drugs is doubtful in these cases. Infectious scour has been quite successfully controlled by vaccination with the proper agents.

WHY GENERAL PERSHING'S HORSE WAS HELD IN QUARANTINE

(*Continued from page* 500)

contagious diseases. "Kidron," on the other hand, went wherever his master chose to ride him and may have touched noses with any number of French horses having any kind of contagious disease.

If "Kidron" were released from quarantine, he would probably visit scores of cities throughout the country, and if he had a disease, might spread it beyond all reasonable possibility of eradication. For these reasons, the Department of Agriculture thought it wise not to create any sort of favored status for him.—*United States Dept. Agr. Off. of Information.*

CHRONIC TURPENTINE POISONING

In a herd of sixty-five pigs of 40 to 75 pounds each, the owner's statement was that all of the pigs seemed to be getting big bellies. At the time I was called four had died in as many days and about twenty-five were noticeably affected with various degrees of abdominal enlargement.

Necropsy of the pig which had been the last to die, about four hours before, revealed a peculiar condition of the kidney. The best way to describe this condition is to state that it appeared to have been sliced off as though with a curette, leaving several concave depressions about one-half inch in diameter. The capsule of the kidney was detached and there were several diffuse hemmorrhages of the large bowel. A considerable amount of a clear fluid was found in the abdominal cavity. Diagnosis was not arrived at so another of the worst affected pigs was killed.

In this pig there was found a sac formed around each kidney in which was about one and one-half pints of clear non-coagulated fluid. Between the layers of the peritoneum forming the mesentery of the small intestines was a considerable accumulation of the same character and also free in the peritoneal cavity was a large amount. This gave to the pig a decidedly pot-bellied appearance and there was a hollowness in the flank anterior to the exterior angle of the ileum.

In several pigs where the temperature was taken, it was found to be normal. The owner stated he had been giving these pigs about a cupful of turpentine at five to seven day intervals for some time . Investigation led to the conclusion that they had been getting about twice what the owner first stated. In the absence of good ground for any other diagnosis, a tentative diagnosis of chronic turpentine poisoning was made.

Since the pigs were constipated, a physic of salts was recommended in the slop and a light dosage of hexamethylenamin was given for a few days. No further trouble nor losses have been experienced since the 11th of July, when I was first called to the case.

I am not yet sure of the diagnosis though the treatment, the lack of treatment or the removal of the predisposing cause has removed the clinical symptoms of the disturbance.

G. A. H.

Dr. Harry Morris, recently returned from the army, has located for practice at Rock Island, Ill.

Department of Live Stock Poisoning

By L. H. PAMMEL, Ph. D., Ames, Iowa
Professor of Botany, Iowa State College

Readers are urged to take advantage of the opportunity offered by Dr. Pammel, for the identification of specimens of supposedly poisonous plants. Two good-sized specimens, carefully packed, should be sent to him direct, with such history as may be available. Simply mention that you are a reader of the AMERICAN JOURNAL OF VETERINARY MEDICINE and no charge will be made for this service.

Poison Hemlock

By L. H. Pammel

During my travels this summer I found poison hemlock (*Conium maculatum*) abundant at two widely scattered points. The first locality noted was Bellevue, Iowa, where it is well established and has been for some years. The other point noted is Golden, Colorado, where I first noted it some six or seven years ago. I also noted the plant in Salt Lake basin, Salt Lake City, some fifteen years ago. I found that the weed at Golden, Colorado, spread to many of the streets. It is certain to be as common in points of Colorado as wild parsnip (*Pastinaca sativa*) is in Iowa. Some methods looking towards its extermination should be resorted to at once, not only in Colorado, but in Utah and Iowa.

What is poison hemlock? It is a smooth biennial herb with spotted stem and pinnately compound leaves, small white flowers, smooth fruit. The fresh green specimens have the odor of mice. Poison hemlock is a member of the carrot family (*Umbelli ferae*) and is closely related to water hemlock (*Cicuta maculata*) another deadly poisonous plant. The poison hemlock was well known to the ancients, Socrates having died from the effects of the poison. The plant was much used by the ancients for criminal poisoning. The fresh plants are much more poisonous than the dried. The alkaloid coniine is derived from the plant. The alkaloid has an alkaline reaction, a burning taste and causes dilation of the pupil. There have been a number of cases of poisoning from the seed of the plant in the United States because of its being mistaken for parsley and the seeds have been mistaken for anise.

SYMPTOMS: The symptoms in man are due to a general and gradual weakening of muscular power. The power of sight is often lost, but the mind usually remains clear until death ensues, as it soon does from the gradual paralysis of the lungs. The poisoning differs from that of the water hemlock (Cicuta maculata) in the absence of convulsions. Many domestic animals have been killed by eating the plant, the prominent symptoms described for cows being the loss of appetite, salivation, bloating, much bodily pain, loss of muscular power and rapid, feeble pulse.

A Treatise on Hay or Forage

Edmond Gain and D. Brocq-Rousseu* are the authors of a splendid treatise on hay or forage plants. At first sight there would seem to be no connection between poisonous plants and hay, yet the authors devote nearly eighty-five pages to a consideration of toxic principles in hay, poisonous fungi, and injurious plants including some animal parasites. The authors list some 78 species of rust, 42 smuts, besides the plants of the family Hypocreaceae which contains the ergot, cattail fungus (Epichloe) besides *Leptosphaerias Fusarium Pyricularia, Phyllachora,* etc., found in hay. The paper contains a very full account of poisonous grasses like darnel (*Lolium temulentum*), needle grass (*Stipa viridula*) and four other grasses regarded as injurious *Anthoxanthum odoratum, Alopecurus geniculatus, Glyceria aquatica, Arundo Phragmites,* some poisonous plants of the family *Cyperaceae Liliaceae,* smartweed family (*Polygonaceae*). The only plant mentioned here is the sheep sorrel (*Rumex Acetosella*). The spurge family (*Euphorbiaceae*) contains a dozen plants and so on. The more important poisonous plants in different families of flowering plants are mentioned and often the symptoms of poisoning are given. Considerable space is devoted to fungi. More space is given to ergot than any of the other fungi. I was quite interested to note that the cattail fungus (*Epichloe typhina*) recently described by me in this Journal is recognized as a poisonous plant. The writers state that the animals lose appetite and that its poisonous action is much like ergot. The poisonous nature of the cattail fungus seems to have been recog-

Bailliere et Fils.

* Taite des Foins 1-795 *f.* 1-777 Paris 1912, J. B.

nized by Frank and Wochens and Prillieux. Various other pathogenic organisms found in hay like *Actinomyces bovis, Aspergillus fumigatus, Mucor racemosus,* etc., are fully described.

The work is a most useful one. The subject matter is fully and well treated. It also contains many excellent figures.

Fly Amanita and Boleti

The writer has done considerable tramping in woods, pasture and prairie during his life time. He has kept an eye out for plants that might be injurious. In a recent trip in the Arapahoe National Forest in Colorado on one of the forks of St. Louis Creek at an altitude of 11,000 feet he saw a great many fleshy fungi. They were mostly species of the genus Boletus. Some of the species appeared to be poisonous. I had no means of identifying the species. Some of these *Boleti* were more than eight inches across.

The writer found on Bayer's Mountain in the same region a number of the poisonous *fly amanita.* I had never seen as many of these before. I should judge this species must be common in this region. The region, at timber line, is used for grazing sheep and it is not improbable that poisoning sometimes may occur from the *fly amanita.* The fleshy cap is yellowish to orange red; the specimens found by me were orange red. The stalk is cylindrical, hollow with a bulbous thickening at the base. The surface of the cap is polished and scattered with small warty scales which are easily scraped off. The gills and stalk are white and a large membranous substance hangs down from the upper part of the stem. This toadstool is deadly poisonous. It contains the alkaloid muscarin and also the substance cholin, which unites with oxygen and forms the alkaloid muscarin. When the fungus decays the muscarin forms neurin a very deadly poison. Muscarin acts on the nerve centers, causing a contraction of the pupils.

Whorled Milkweed

While in Colorado this summer, I saw the following note in regard to the whorled milkweed in the Denver Rocky Mountain News of August 10th, 1919.

"The local county commissioners took an advanced step toward the eradication of the whorled milk-weed poison when they declared two sections of the county as milk-weed pest districts and issued a proclamation to the property owners of these sections, outlining the requirements of the law."

"Milk-weed has already caused thousands of dollars of loss to the farmers of this community and this week petitions were signed by practically every farmer in the two worst infected districts, asking that the county commissioners make their sections pest districts. The county commissioners have under consideration several names for the position of inspector in this work."

There may be some question as to what species our Iowa whorled milkweed belongs to. It has usually passed for *Asclepias verticillata.* Mr. Eggleston is investigating the distribution and identity of the Iowa and other western material of the supposed whorled milkweed. He will no doubt in course of time, make a report on his findings. and tell us just what we have in this region. We have had occasion to make some extended observations this summer on the whorled milkweed plant in Iowa. Whorled milkweed in Iowa usually grows in somewhat gravelly or sandy soils or Missouri loess soil. I found it common in the following places and counties in Iowa, Bellevue (Jackson), Monticello (Jones), McGregor (Clayton), Des Moines (Polk), Ames (Story), Oskaloosa (Mahaska), Iowa City (Johnson), Boone (Boone), Oakland and Council Bluffs (Pottawattamie), Missouri Valley (Harrison), Sioux City (Woodbury) and Glenwood (Mills). It occurs no doubt in every county in Iowa. I also found it at Minneapolis and St. Paul, Minnesota, La Crosse, Wisconsin and Yankton, South Dakota, also at several points in Colorado. There should be many cases of poisoning if the Iowa and eastern plants are as toxic as the Colorado plant is represented to be. It is, however, to be said that stock usually avoid the plant.

HOW WE LEAD IN SWINE

Of cattle the world contains probably 475 million head, of which the United States has about one-seventh.

Of sheep the world contains approximately 500 million head, of which the United States has about one-tenth.

Of swine the world contains in the neighborhood of 180 million head, of which the United States contains considerably more than one-third.

In other words, swine are less numerous than either sheep or cattle in the world at large, but are more numerous than either in the United States.

Or the same classes may be considered in this way:

In cattle the United States is second to India, with three other countries, Russia, Brazil, and Argentina, following.

In sheep the United States is second to Australia, with Argentina, Russia, and New Zealand, the principal sheep-raising competitors.

In swine the United States is easily first, and this year has more hogs than her ten nearest competitors all combined. The closest of these are Brazil, Germany and Russia.

So the greater abundance of swine is perhaps the most noteworthy difference between the meat resources of the United States and most other countries.

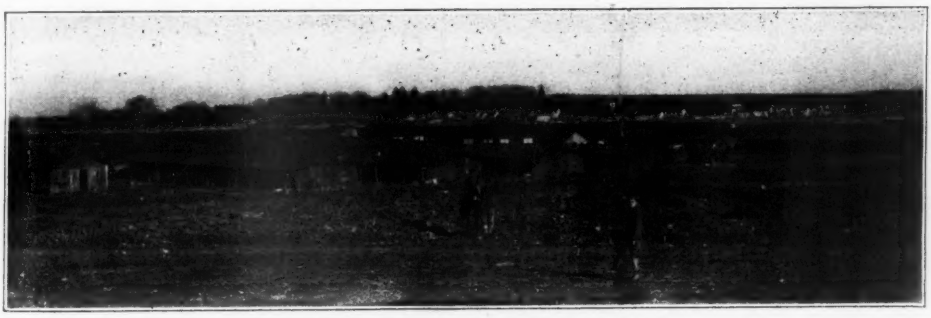
Dr. H. N. Lawrence, who saw service in the veterinary corps overseas, has located for practice at Dublin, Ga.

POINTED OPINIONS by Readers ON LIVE TOPICS of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the lasting gratitude of those who are aided by your suggestions.

Some Experiences in the Veterinary Corps

I was commissioned in the veterinary reserve corps as second lieutenant, August 27, 1917, and called to active duty September 18, 1917, at auxiliary remount depot No. 320, Camp Custer, Mich., where I remained on duty until June 10, 1918, when I was transferred to the officers' training school, Camp Greenleaf, Georgia. There I spent seven weeks of misery doing fours east and west. However, do not misconstrue my meaning as I think the schooling was a fine thing for us, and it was too bad that more could not have had the opportunity; but I think most of the boys will agree with me that it was misery for a professional man.



Army veterinary hospital, Lux (Cote d'Or), France.

On August 8th I was transferred to the veterinary training school, Camp Lee, Va., for duty. I was there only until August 17th, when I was assigned as commanding officer of veterinary hospital No. 14, which was not in existence, but I was told that I was to get my men, three hundred and eleven, from the third provisional battalion and that I would have to pitch tents, erect kitchens, latrines, etc., and have it done by noon the next day. This I had no trouble in doing with the cooperation of the officers and men. We stayed in Camp Lee until October 12, 1918, during which time the officers and men received instructions, both military and professional, under the direction of Lieut. Col. Griffin. I heard many kicks by veterinary officers as to treatment received from the infantry officers who had charge of the military part of training. Personally, I have a lot of admiration for Lieut. Col. Griffin, and I think if more veterinarians of high rank were like him, the veterinary corps would have been much better than it was. It mattered not to him what school one came from or what society one belonged to, one was given just what one could measure up to. I might say that the majority of infantry officers were reminders of that type of man who never made a living and had a bad case of what is commonly called swell head, over their rank, and, of course, they were allowed to treat the veterinary officers with no respect, for the commanding officer was a line officer also.

It was during this period that influenza was raging in our camps, and our soldiers were dying off like flies. I well remember meetings that we all had to attend evenings, which were contrary to orders issued by higher authority, for the purpose of listening to some hot air escaping from some infantry lieutenant talking

on subjects that had no importance in our line of work. Yet the danger of contracting influenza was so great that for six weeks officers were not permitted even to go to the exchange. I will not dwell on this subject any longer as it probably does not deserve the space.

On October 12th we left for City Point, a distance of eight miles, where we took a boat called the Mobjack, which the writer believes was the first of its kind, down James River to Newport News. There we boarded the U. S. S. Huron, formerly a German boat, leaving the United States, October 14th and arriving at Brest, France, October 27th. We marched to Pontanezen Barracks, which was called a rest camp, but I believe I could have found a more appropriate name for it as the boys had to unload ships at the docks every night. Beds were made up on the ground with fully two feet of mud and water running under them, but thank the Lord, troops did not remain there long. However, the camp has been improved so that it is model now.

We started for Gievres, November 3rd, travelling in French box cars, which were indeed very attractive. We stayed at Gievres with veterinary hospital No. 11 until November 12th, when we proceeded to Lux, Cote d'Or, arriving November 14th. There we fought the battle of mud and possibly a little cognac until May 27th, when we pulled stakes for the good old U. S. A.

Upon arriving at Lux, we found veterinary hospital No. 21, which had arrived a few hours before. There were also about three hundred animals tied in the barn with no hay or grain in sight, and the hospital was only half completed. About the second day it started raining, and to my knowledge, it rained every day for three months, during which time the only footwear was hip rubber boots. It was indeed a discouraging sight. Shortly after arriving, Major H. W. Peter, a regular army veterinarian with years of experience, was assigned as post commander. He had many valuable suggestions, and through his untiring efforts and our cooperation, we got a wagon train together and started hauling stone and gravel. Oftentimes we would build several rods of seemingly serviceable road in a day, only to find it sunken out of sight the next morning. Rock and gravel hauling continued until over four thousand loads of each were hauled, when it was looking more like a veterinary hospital.

During our career, hospital unit No. 14 served in receiving patients, and hospital unit No. 21, of which Major Morris was commander, evacuated the animals. There were over five thousand animals passed through the hospital. We had plenty of veterinary supplies and a well equipped operating table, where Captain Richard Folsom, formerly house surgeon in the veterinary department at the University of Pennsylvania, performed over one thousand operations, consisting of quittors, roaring, calculi, fistulas and removal of foreign bodies. Nearly all horses were mangy. They were dipped every seven days in lime and sulphur by means of a vat, which cured most of them in three weeks.

Some of the enlisted personnel of the Lux veterinary hospital.

We left Brest June 16th for the U. S. and arrived at Newport News, June 27th, where the unit was split into detachments. The headquarters consisting of myself and ninety-one men, were discharged at Camp Grant, Ill., July 9th. Thus ended a career of much pleasure. Let us hope the veterinary corps in the future prospers by its mistakes in the past and that the much needed legislation is enacted so that the corps will be respected like other branches of the service, also that the officers will have equal rank with the medical profession, which they are justly entitled to.

Middleville, Mich. ROBERT S. MARSHALL.

RAT NOT IMPORTANT IN DISSEMINATION OF HOG CHOLERA

It has been found that the virus of hog cholera disappears after intravenous and intra-abdominal inoculation in the case of rabbits, guinea pigs and pigeons. The virus can be recovered from white rats seven days after intra-abdominal or intracerebral inoculation.

The rat cannot be infected by feeding virulent material. Neither can the virus be passed from one rat to another. From these facts it seems plausible that the rat does not play a part in the transmission of hog cholera.

IMPACTION RELIEVED BY MEANS OF STOMACH TUBE

There is a type of impaction characterized by the dry mouth, pale mucosa, dull pains, animal will not drink, lies stretched out on the floor for long intervals, peristalsis in abeyance, rectal exploration reveals a heavy mass in the large bowels at some juncture of the large colon which when kneaded with the hand per rectum gives some uneasiness to the patient. The rectum is usually ballooned as Reeks terms it. This constitutes about eighty per cent of my colic cases, and in the several years I have been in practice, I have had all kinds of experience with various proposed remedies. I have poured white rose mineral oil, linseed oil and salts galore down the throats of my patients until I was disgusted. I have tried the carbonate and nux capsules, eserin, arecolin, aloes and many such agents but with limited success however. After adopting some different procedure, I sometimes thought that I had struck the very thing, only to become convinced to my great chagrin sooner or later that something better would have to be looked for.

Several years ago while poring over Reeks' "Colics of the Horse" (and let me say right here that I think there is no work available that nearly approaches it for good sense and logic on that subject) I saw he intimated that some day possibly some one would invent a sort of stomach tube to use upon the horse. He also seemed to despair at the great difficulty of affording moisture in the colon in those troubles. His chief aim was to excite those glands to furnish secretion sufficient to lubricate and aid softening of the offending mass, as well as to stimulate the musculature of the bowel also. This he very adroitly seems to reason out. We understand that the larger bowels have no secreting ability of their own and have to depend upon that from the small intestines for liquids. Immediately horses become impacted as I have described, they quit drinking which only adds to their plight. The body by its constant dissipation of moisture continues to add to the already bad condition.

Several years ago, when but a freshman, I purchased one of Philip's stomach tubes and pump (by far the best one I have ever seen, and I still have it) and learned to pass it through the nostril. After looking around for some prompt and efficient remedy for this dreaded impaction, I concluded to try the water cure, as we practitioners are prone to adopt cheap remedies as we get older in the business. I began reasoning along the line of lavage, and to my great delight I found that a horse will take the remedy splendidly and respond to it most delightfully indeed. A bucketful of water, say two or three gallons, pumped into the stomach every two hours or so and kept up for a while, will remove any impaction in a very reasonable time if a few doses of stimulant like a dram of flext. nux every five or six hours are given on the tongue and after the bowels begin to rumble, which will be in a few hours. After treatment is carried on in this way, one begins to give eserin, flext. physostigma, arecolin, or some other good stimulant to the muscles of the bowels, in judicially graduated dosage.

This stomach lavage is a bugaboo to some I know, but that does not alter its efficiency in the least. I was surprised when taking senior work at the Terre Haute college in 1915 to discover that very few of the boys had had an introduction to the stomach tube for such purposes. That year an epidemic of forage poisoning was rampant about Terre Haute. Drs. Ramsey and Flemming were very busy with their duties as teachers and taking squads out on calls to see the stomach tube used on those cases of forage poisoning. A man by the name of Sifford from Missouri and I were about all who had had very much practice before entering there, and both had had a stomach tube for years. We had used water, with a little permanganate of potash in it for forage poisoning with success, but were astonished indeed when shown that as much as ten to fifteen gallons of water were pumped or siphoned into each case of forage poisoning and those men saved nearly every case that they got to anywhere near the outset. I thought it absurd and impossible but it is a fact. Those patients broke out in a sweat and immediately they would have from one to several good copious evacuations and begin from that very hour to recover. I mention this only as an incident to prove the possibilities and practical appliance of the greatest boon to the practitioner of veterinary medicine, the stomach tube, in removing obstructions from the alimentary canal, by the process of lavage.

A horse's stomach will normally hold from two to five gallons of material. We have all sat on the old family nag after a half day's strenuous labor and seen her nearly empty a tub of water, and go immediately and eat a large dinner and within an hour from the previous drink partake of still another several gallons of water and we could hear it rushing along its way through the small intestine as she drank. The stomach will fill and rush it on into the small bowels and into the large ones and soften up the contents there with certainty and amazing rapidity. But remember this: Do not try to administer eserin and such violent remedies until you have established peristalsis with the water. Get the contents of the bowel soft and sloppy with water and borborigmus will follow. Give stimulants to the muscular coats of the bowel, and if you have been wise enough to abstain from giving anything to allay pain, you will be gratified to see your patient recover uneventfully. Always pass the tube through the nostril; watch for its presence in the groove of the left side

of the neck; put it to your ear to be sure there is no breathing taking place through it, which will prove a never failing guide if there is no water in it to start with; and when down a ways toward the stomach or in it, you may supply the water ad libitum. This all done, ninety-five per cent of such impactions will yield promptly.

Corydon, Ind. J. W. HARBAUGH.

ARECOLIN IN THE TREATMENT OF METRITIS

I was called to see a bay, Clydesdale mare weighing 1,600 pounds that had been in labor three hours. I could locate one front leg flexed at the fetlock and cloven-hooled; the other front leg was back and I was able to reach only the arm. The head was at the side. After two hours of hard work, having to amputate the head in the process, a delivery was effected, but only after two men had used their entire strength on a block and tackle. I then attempted to remove the afterbirth, which to my disgust would not move without a great deal of hemorrhage. The mare was given one grain strychnin sulphate, and I left instructions for the owner to call me the next day if the afterbirth did not come away. No call came, so I concluded all was well.

The following day, a client who was a neighbor to the owner of the mare in question, called me, so on my way I stopped to see the mare and found the afterbirth still attached, the attendant giving as a reason for not having called me that he was unable to get the long distance telephone to work. I at once prepared to remove the afterbirth, and after some difficulty it came away, though not in the manner we like to see it, and I suspected that there were small shreds still in the uterus. I might mention that the mare by this time showed a well marked case of laminitis.

My treatment of this case was the same as I nearly always follow and which gives me very good results. First I administer hypodermically one-half to one grain arecolin, then proceed to flush out the contents of the uterus. If possible at all, I have a good sized pail of water boiled and cooled to the proper temperature, adding just enough cresylone to give it a good healthy smell. About half of this amount is injected into the uterus and then siphoned out. The second washing generally makes things pretty clean. It is here that the arecolin seems to do the good work by causing the uterus to contract and at the same time it keeps the bowels active. After having siphoned the uterus as dry as possible, a thing I consider very necessary, I anoint the vagina if it is badly inflamed or torn with a one per cent yellow oxid of mercury ointment.

In this case of laminitis, the mare's feet were put in a hot poultice with instructions to keep them hot until I ordered otherwise. She was given one and one-half drams potassium nitrate and one-half dram nux vomica three times daily. Her food consisted of mashes and a little green oats.

In all I made three visits to this animal and each time she received the flushing and arecolin, after which I considered her out of danger. Some may ask when I consider it to be proper to discontinue the washing, and my answer is, as soon as the womb quits presenting the semblance of a loose pocket filled with secretions, and clasps the hand firmly. When I get this, I feel my case is well on the way to recovery, although I still make a few more examinations as I had one or two cases where the womb relaxed and required draining again.

The foregoing has been my treatment in fifteen cases during the last three months, and all have made good recoveries. In two cases only, where constipation existed, I administered a small aloetic ball consisting of six drams Barbados aloes, one dram calomel and ginger.

I believe the secret of success in this as well as a great many other ailments is persistence. Keep up your visits until you are satisfied. I have never known the owner to complain of the cost when his mare lived.

Stonewall, Manitoba. H. R. MCEWEN.

MIXED INFFCTION IN SWINE

The adoption of the term mixed infection of swine, is because of the fact that these cases have culturely revealed mixed infection. Even in the various types of this condition there are sufficient organisms present capable of producing many pathologic changes. The varying degree of virulence and the varying degree of resistance in the individual swine attacked—probably account for the varying pathologic changes.

The organisms of the mixed infection group are: Pneumococci; bacillus suisepticus; colon bacillus; bacillus suipestifer; staphylococci and streptococci. Bacillus necrophorus when associated with certain organisms.

The two most important types are the pulmonary and intestinal. Of the pulmonary type we have to consider chronic bronchitis in young growing pigs; catarrhal and pleuro-pneumonia—usually found in the larger hogs such as feeders, and croupous pneumonia.

Chronic bronchitis is characterized by a cough, impaired appetite, unthriftiness and usually no fever.

Catharrhal and pleuro-pneumonia present symptoms which are naturally in accord with the existing pathologic changes. Usually a sudden onset, high temperature, great depression, labored breathing and auto-intoxication.

Croupous pneumonia is characterized by a sudden onset, acute in character and death following in from a few hours to two or three days. Hemorrhagic lesions of the serous and mucous membranes, kidneys, spleen, lungs and heart. Lymphatics have a slimy, dirty grey ap-

pearance. The hemorrhages are not circumscribed, but border on more of a diffuse nature and infiltration into the tissue.

The intestinal type comes under the head of necrobacillosis, which is necrotic enteritis. Under necrobacillosis we have for consideration three important conditions: Necrotic stomatitis, bull nose as called by the laity, and necrotic enteritis. The specific cause of these diseased conditions and others is the Bacillus nechophorus.

Predisposing factors are inbreeding, unsanitary hog premises and clipping the so-called milk teeth. Personally from close observation year after year in various herds of hogs, I am becoming convinced that these three conditions will increase in their prevalence in a herd from year to year, if the hog raiser does not select his prospective brood sows from the healthy sow pigs that do not show the infection when these conditions are present in his growing herd, or if he does not purchase new supply of brood sows elsewhere.

Swine mixed infection bacterins when used early prove a very efficacious line of treatment. After these disease conditions have run a neglected course for some duration, these bacterins or medicinal agents will not repair the damage already done. Although the pigs may be saved, they will not make brood sows or profitable fattening hogs. Prevention is their important use. The swine raiser does not care so much about his loss and the few that will die, if he can be assured the rest of the herd will not become diseased. The secret, if there be any, is the use of the bacterins early. If necessary repeat in from five to seven days. In stubborn and persistent cases, repeat the third time giving the maximum dose each time. Tonics are very satisfactory medication to augment the bacterin treatment, especially those containing iron and arsenic.

Tama, Ia. FRED M. MAXFIELD.

LOBELIA DEPENDABLE IN TREATMENT OF TETANUS

On July 4th, about 5:00 a. m., I was called seventeen miles into the country to see a four-year-old black mare, weight 1,400 pounds. The owner stated over the telephone that the mare had been stiff in her movements for three days and that morning he found her down in the pasture and unable to get up.

On my arrival, I found a pronounced case of tetanus with the exception that her jaws were not completely set. I told the owner if we could get her to the barn and swing her, I thought there might be some chance of recovery. So he made a boat out of planks and we pulled the mare into the barn. I used the rope sling to raise her and it worked nicely. The owner told me the animal lay in the sling the rest of the day before putting her weight on her feet.

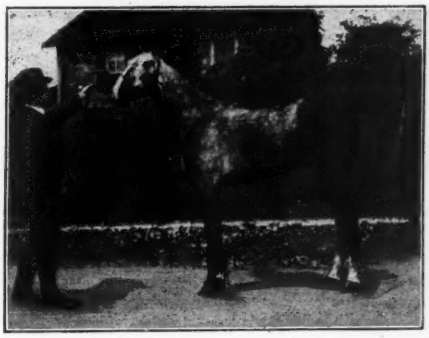
Treatment: Lobelin sulphate the first day and fluidextract of lobelia daily for three weeks with plenty of Epsom salt in the drinking water. She never missed a meal after the first day, but she could not stand on her feet without the sling for four weeks. After this she was turned out to grass and the last I heard of her she was doing fine. I think lobelin the best treatment for this disease. I had five other cases which terminated in a cure, where I used antitoxin with the lobelia treatment, but I think they would have done just as well without the antitoxin. I have no faith in it as a curative agent.

Wellston, O. G. W. RADER.

SERUM FOR TETANUS IN HORSES AND MULES

I have read many interesting reports in the Journal regarding tetanus and its treatment, and will cite ten cases coming under my care with treatment employed and the results in each case.

Case No. 1, January 19, 1916. Chestnut mare owned by H. Timmerman, Jr., aged nine years, weight about 1,000 lbs. Point of infection—nail wound. Symptoms: Trismus almost complete; nostrils dilated; when head was elevated the nictitans membrane would almost cover the eye;



Tetanus in a mare, photo by Dr. A. C. Burt, Simcoe, Ontario.

animal very stiff; tail erect. Treatment: Nail wound opened, soaked with tincture of iodin and cavity packed with cotton; animal placed in darkened stall; 3,000 units tetanus antitoxin and one ounce of flext. lobelia were given daily for eight days, then every other day until 45,000 units of antitoxin and fifteen ounces of lobelia had been given. Result: Complete recovery in four weeks.

Case No. 2, April 14, 1916. Bay gelding owned by W. B. Preston, aged eight years, weight about 950 lbs. Point of infection—nail wound. Symptoms, as usual. Treatment: Wound freely opened and tincture of iodin applied; animal placed in a dark stall; 3,000 units tetanus antitoxin and one-tenth grain lobelin sulphate given daily for thirteen days, after which the antitoxin was discontinued and lobelin given twice

daily. Result: Patient discharged cured in twenty-eight days.

Case No. 3, April 21, 1916. Bay gelding owned by Willie Simon, Hunter, Texas, aged six years, weight about 1,250 lbs. This animal was very vicious; therefore, no injury could be found. Symptoms, very pronounced. Treatment: Animal placed in an adjoining stall to case No. 2; an initial dose of 6,000 units tetanus antitoxin was given and 3,000 units twice daily thereafter for five days, then once daily for four days; lobelin sulphate also given. Result: Nice recovery in four weeks.

Case No. 4, May 5, 1916. Dun mule owned by G. G. Johnson, aged eight years, weight about 1,100 lbs. Point of infection, nail prick with profuse suppuration. Symptoms, as usual. Treatment: Wound cleansed; tincture of iodin applied and cavity packed with cotton; patient placed in darkened stall; 3,000 units antitoxin and lobelin sulphate, one-tenth grain, given daily for twelve days. On the thirteenth day, all symptoms had abated and the mule seemed almost cured. I began to think I could cure them all, but I figured too fast, for when the noon hour came I went in to give her her midday meal—and she was dead.

Case No. 5, October 18,1916. Gray mule owned by Ord Gary, aged eleven years, weight about 1,000 lbs. Point of infection, bruised sole with profuse suppuration. Symptoms, typical. Treatment: Foot cleansed, iodin used freely and poultice applied; patient placed in dark stall; 3,000 units antitoxin and lobelin sulphate, one-tenth grain, given daily for six days, antitoxin then given every other day for another week. Result: Complete recovery in three weeks.

Case No. 6, March 9, 1917. Brown gelding owned by Wells Fargo Express Co., aged seven years, weight about 1,400 lbs. Point of infection, nail wound. Symptoms, usual. Treatment: Iodin locally; horse placed in dark stall; 3,000 units antitoxin twice daily for seven days with lobelin sulphate, one-tenth grain. On the eighth day a practitioner from a neighboring city was sent for by the express company with instructions to do whatever he thought best with the animal. After his examination, he advised the agent to have me chloroform the horse. I flatly refused to do so and informed him the horse was on my premises, in my stable and under my care. I placed a lock on the door and told him I dared any man to take the horse out. They finally offered to pay the drug bill and give me the animal for the veterinary fee and I accepted. Treatment was continued a few days longer. Result: Entirely cured in four weeks.

Case No. 7, April 15, 1917. Mule owned by Emil Simon, Hunter, Texas, aged three years. Point of infection, castration wound. Symptoms, severe. Treatment: Animal cast and wound opened freely; cleansed with bichlorid solution and painted with tincture of iodin; 3,000 units antitoxin and lobelin sulphate, one-tenth grain, every other day for two weeks; patient allowed to run in small pasture with his dam. Result: Complete recovery in three weeks.

Case No. 8, March 15, 1919. Mule owned by Chas. Clark, Kyle, Texas. Point of infection, nail wound which had entirely healed. Treatment: Animal allowed to run in oat field with other animals; 3,000 units antitoxin and lobelin sulphate, one-tenth grain, every other day for two weeks, also potassium bromid, eleven drams, twice daily. Result: Nice recovery in twenty-five days.

Case No. 9, June 19, 1919. Black mule owned by the San Marcos Milling Co., aged about fourteen years, weight about 1,200 lbs. Point of infection, nail prick. Treatment: Iodin locally; 5,000 units antitoxin as an initial dose and 3,000 units daily thereafter for seven days; lobelin sulphate also used. Result: Entirely cured in three weeks.

Case No. 10, July 2, 1919. Sorrel mule owned by J. M. Jackson, aged four years, weight about 1,000 lbs. Point of infection, nail wound with a very profuse suppuration. Prognosis grave and the owner so informed, but he wanted something done for his mule. Treatment: Iodin locally; 5,000 units antitoxin and lobelin sulphate, one-tenth grain daily for four days; then 3,000 units antitoxin daily for the next eight days. On the thirteenth day, the mule refused to take his medicine or let me handle him in any way. Symptoms were apparently as bad as ever, and I put him on potassium bromid, eleven drams, twice daily in bran mash. Result: Discharged cured July 22nd. I have never before seen symptoms abate as fast as in this case.

San Marcos, Tex. CURTIS L. IVEY.

GASTRIC JUICE OF DOG DISSOLVES IRON

Looking over a recent number of the Journal, I note the ingenious method of removal of a fish-hook from a dog's stomach with a cork, etc. For general information, I wish to relate, however surprising it may seem, that fish-hooks and other small iron or steel articles such as tacks, nails, pins, etc., are easily dissolved by the gastric fluid of a dog in good health. I have never held nor heard of a post-mortem examination being held on the dog where the cause of death could be attributed to any small iron articles. I have seen a dog swallow two to four dozen carpet tacks repeatedly with no effect except to blacken the feces perceptibly the following day. This appetite for metal, however, does not seem to grow on the dog, and I would still consider it safe to park the dog and the Ford in the same inclosure.

New Orleans, La. F. B. FORD.

DAKIN'S FLUID

Dry sodium carbonate....14 Gms. or 215.6 grs.
Water .....1000 c.c.
Good bleaching powder....20 Gms. or 308 grs.

In half an hour, siphon off the clear liquid into amber bottles through cotton or filter. Then add boracic acid, 4 grams or 61.6 grains. The solution should be neutral. If alkaline add boracic acid in sufficient quantity to neutralize. It is now ready to use. This can be made for about ten cents per gallon.

A trade pamphlet has the following to say with regard to its stability: "Chlorazene will keep its strength for a long time. Under exacting tests, Dakin found that in aqueous solution it lost only 0.75 per cent of its concentration in three months. In solid form it is capable of being preserved indefinitely."

Ashton, Ill. E. B. McCLURE.

INTUSSUSCEPTION FOLLOWING CASTRATION

I was called to a town twelve miles away to castrate a so-called "man-eating" grade stallion, black, 14 years old, weight about 1,300 lbs., 15 hands high. Nothing could be done with him owing to his disposition. He was kept in a box stall where he was fed and watered, and two days before I was called, he had broken loose and to use the owner's words "chewed a horse to pieces."

When I arrived I met an army of men at the barn who had come to help and to witness the expected fun. The stallion was approached with a club and brought out with five or six men hanging on to the rope. We led him out to an enclosed pasture specially prepared for him, fifty yards square. After some little difficulty, I adjusted the harness and we downed him without much ceremony as he offered but little resistance. Then he was securely tied and I started to wash him off, when for the first time he tried the ropes. This he continued two or three more times, then quit. At this stage I had completed the washing and was about to operate, when he started to strain, and didn't quit until about two feet of the rectum was out on the ground. During this straining process, I removed one testicle and had decided to let him up for fear of his rupturing some internal organ or causing intussusception, but the owner said to continue the operation while we had him conquered, so the other testicle was removed.

Then I untied him, and while he was lying quietly on the ground, I thoroughly washed the prolapsed rectum. He ceased to strain immediately he was untied, and I returned the rectum the best I could, my only regret at the time being that I didn't have my pump and hose to fill him with water and try to replace or remove any kinks that might have been anterior to my arm's length. After this was done, I let him up, when he started in to eat of the fine pasture before him, but I made the owner keep him moving around for an hour until he passed some flatus and manure. Then I left, thinking he would be all right.

All went well until the next day, about 3 p. m., when he was last seen grazing to his heart's content and apparently none the worse for his losses. About supper time the owner went out to look at him and behold he was dead—yes, dead.

The owner held an autopsy and found three feet of his bowels telescoped with about a foot already sloughed off. No one blamed me for the stallion's death. On the contrary, the owner's wife was pleased with the outcome.

Should I have anesthetized him before attempting the operation? Would water per rectum at the time of the operation have remedied the condition? Should I have ceased the operation? The local M. D. who is a good horseman told me that in all probability the stallion was unconscious and his straining was due to reflexes. Is he right?

Powassan, Ontario. ALFRED L. ROOKS.

TREATMENT FOR EVERSION OF THE VAGINA

I should like to mention a method of treating eversion of the vagina or uterus in cows that has been very successful in my hands. I have never seen it described in textbooks, but possibly it is not new to many in the profession.

Generally there is no great difficulty in replacing the uterus if it has not been out too long. The difficulty is to get it to remain in position. I replace in the usual manner after washing the vagina in a warm, weak antiseptic solution, and then sew up around the labia with the tobacco pouch suture, using tape, pulling up firmly and tying. The cow can then be turned out and no further treatment is necessary. I use the same suture in eversion of the rectum and also in umbilical hernia of pigs.

I am always glad to receive the Journal and have gained a number of practical ideas from its pages.

Emerson, Neb. J. R. TAYLOR.

TEAT OBSTRUCTIONS

Teat obstructions, although seemingly of small importance, are of vast concern to the dairyman.

These obstructions may be divided into two classes, the congenital and the acquired. In the former class we usually find (1) no opening in the end of the teat or (2) the mucous membrane which usually covers the inside of the teat passes directly over the upper part of the teat canal and does not dip down to cover the inside of the teat cavity. These conditions are usually found when the heifer first calves.

In the acquired class we may find an obstruction in the end of the teat, a thickening and hardening of the sphincter, or there may be an obstruction, a fibrous obstruction, in any part of the teat canal. It may encircle the canal or it may be on the side of the canal attached to the wall.

I have noticed that a large percentage of cases, where the tumor is high up in the teat, are in cows that have been allowed to suckle calves for a long period of time. This may be only a coincidence. Fibrous growths in the teat canal may be caused also by other cows treading upon the teat. Cows that are compelled to step over some object in entering the stable are often so affected with similar teat obstructions.

Diagnosis is easily made upon careful examination, being careful to exclude an acute inflammation or recent injury that may be present.

Prognosis is to be guarded at all times, as a large percentage will not be permanently benefited by operation.

Treatment: I believe the best time to operate upon these would be when the cow is dry, and the obstruction may be removed through the side of the teat. At least a large proportion could be so treated. The veterinarian is rarely called upon to treat these in dry cows, but more often in cows that have just freshened, and I will discuss only the methods that I employ in cows that are giving a large flow of milk.

The instruments used are as follows: (1) milk tube, (2) teat tumor extractor, (3) teat slitter, (4) Steffen's teat dilator, (5) large calibre sharp hypodermic needle, (6) teat probe.

The congenital obstructions are usually located at the end of the teat or at the base of the teat. If the obstruction is at the base of the teat caused by there being no opening in the membrane, a probe or milk tube can be passed up the teat canal and forced through the membrane into the lactiferous sinus, or several such openings may be made. The teat can then be readily milked, but usually it again closes in a few days. Only a small percentage of these are permanently cured. When the end of the teat is closed it may be due to there being no opening through the skin that covers the end of the teat, or no opening through the membrane that covers the inside of the teat, or there may be a thickening of the sphincter muscle that closes the end of the teat.

When it is due to there being no opening through the skin, an opening may be made with a sharp hypodermic needle. It may be done with a sharp-pointed bistoury, but I like the needle the best.

When there is no opening through the membrane, it may be opened with a needle as above described or a probe or milk tube may be forced up through the membrane into the canal.

When the sphincter is thickened I use a teat slitter and cut the sphincter in several places, then use the Steffen dilator.

When the obstruction consists of a fibrous growth in the teat canal, it may be removed or a portion removed with the teat tumor extractor. Then the remaining portion is simply cut to pieces with the teat slitter. After this I use or have used the Steffen teat dilator five to eight times in the first twenty-four hours and several times a day for the next three days and after each milking for at least two weeks.

The secret of success in these cases lies in the persistent use of the dilator. The same principles are applied regardless of the location of the tumor. These are only my methods. Others may have different methods that are far better, and I should be glad to hear about them.

Results: When the attendant will follow directions and keep up the use of the dilator, not for a day or two, but for the required time of at least two weeks, the results will be very good. But when the attendant sees the cow milking all right, he is very apt to discontinue the use of the dilator. In nearly all cases so treated the teat will rapidly close up again. If the attendant understood "scar tissue" he probably would use the dilator and get more good results. I cannot make it strong enough when I advise the use of the dilator, because where it is faithfully used good results will nearly always follow. But if neglected unsatisfactory results almost always follow its use.

Quaker City, Ohio. MARVIN E. HARTLEY.

SODIUM CHLORID POISONING

On July 18th, about 3:30 p. m., I was called hurriedly to see a mare which the owner said was slobbering by the gallon. Upon arrival at the farm, I found a Percheron mare, six years old, weighing 1,600 lbs., presenting colicky pains, rolling, getting up and down and salivating profusely. I found the pulse slow, 35, and very weak; temperature 102.6° F.; peristalis practically nil; muscular tremors; mucous membranes injected; anxious expression in the eyes; cold sweating; gritting of teeth and a general expression of intense pain.

The owner informed me that the mare had been working as usual until 3:00 p. m., when she became sick, presenting the symptoms of salivation, sweating and "colic." He asked what I thought was the trouble, and I admit I hesitated before answering. I asked about the feed, pasture, water, etc., stating that the mare must have eaten something that poisoned her. After some insistence, the owner admitted that on the night of July 16th, the mare turned over the salt bucket in the feedway and probably had eaten some of the salt. I at once made a diagnosis of poisoning from sodium chlorid, stating that the prognosis was none too good but we had a chance.

I gave a hypodermic injection consisting of pilocarpin hydrochlorid, ½ grain and strychnin sulphate ¼ grain, also gave four 30-grain sulphocarbolate tablets by the mouth at four o'clock. At 4:30 I repeated the hypodermic injection and in a few minutes the bowels were moving freely, peristalsis much improved and the mare much easier. At 5:00 p. m. I returned home, leaving 30 grain sulphocarbolates, two to be given every two hours until morning, when I would return to see the mare.

The next morning before I had started on my trip to see the case, the owner called and stated the mare was eating hay and was apparently well, which proved true. She was put back to work the next day without any bad results and has done fine to date.

Westfield, Ill. PAUL S. DODD.

AVISEPTICUS BACTERIN CURES AND PREVENTS CHICKEN CHOLERA

Three weeks ago while calling to see a horse, the client's wife asked me if I could do anything for her turkeys, six having died out of a bunch of fifty and several others being sick. I suggested that we vaccinate them, to which she agreed. The Cutter Laboratory of Berkeley, Cal., prepared and mailed me enough avisepticus vaccine to vaccinate 200 fowls against cholera. I used 2 mils for the sick ones and 1 mil for those apparently well. In three days the sick ones had recovered, and there have been no more losses.

Two other clients' wives having heard about the vaccination had me vaccinate their chickens. They had lost several from disease. The sick ones in their flocks also recovered.

Eminence, Ky. W. R. MORGAN.

HOG RAISERS NEED LEGAL PROTECTION FROM "MEDICINE FAKERS"

The reply to my article on "The Veterinarian and the Hog Situation" in the September issue is an unexpected sort of argument, one that does not answer my article in the least. The author of the reply seems to consider me as lacking the knowledge and proper training to handle the hog situation in my locality. The author is evidently unaware of the conditions as they exist in Iowa today and is not aware of the fact that many other veterinarians in this state have the same conditions to contend with, only they have said nothing of these problems thus far. They probably think as I did at one time, i. e. let the farmers go on buying the powder until they find by experience that they are the ones who suffer. But are we doing our duty in trying to conserve all the meat producing animals by letting this thing go on and on? If that is the way our government feels about it, then what is the use of working against odds in trying to carry out prophylaxis. It will be necessary to adopt certain measures if the veterinarians are supposed to carry out this task.

Many farmers realize how the harm is done and why we cannot get the desired results in treating herds filled with patent "dope" and they refuse to use it. However, there are others who will put their hogs on the powder and continue to feed it even though they see that their pigs are failing and wait until they realize that something else must be done when they seek the veterinarian for assistance.

I have been confronted with such conditions several times and I am not speaking theoretically but from practical experience with the situation. I have before me a paper in which I noticed that the veterinarians of one county in Iowa have drawn up certain resolutions in regard to treating hogs filled with all sorts of patent medicines. These men have exactly the same trouble as exists in my territory only they have not been heard from before now. Some time ago circular letters were received by many veterinarians asking them to put forth special efforts to conserve all food producing animals possible during the war. This should be the aim of every practitioner regardless of whether war existed or not and must be your aim if you expect to hold the confidence of your clients. Furthermore, I do not see why we should stand back and see all these hogs lost from the use of the dope until the farmers get "wise" to the powder agent when there might be other methods by which they could be brought to a stop.

In analyzing the reply you state that a man has a perfect right to purchase as much as he wants from anyone that he wishes so long as he does not do any harm to the community. I fully agree to this and that is not the point that I intended to carry out in my article as I realize this so well that it would have been folly to make mention of it. You state that if legislative enactments were passed every time a practitioner would set up a "whine" that it would soon lead us to an autocratic form of government. This is true in so extreme a comparsion as you have adopted, but when the nation's food supply is tampered with, then does it not become the practitioner's duty to protect against the abuse? You also speak about the fake peddler losing the confidence of the farmer and that the advantage was all with the veterinarian. Many farmers, especially the older men, are wise enough to let those peddlers talk because they have had the experience which has lost them enough to know better, but there are also many who are always looking for something to lessen the expense of keeping their stock well and will turn to stock foods as the solution. During the years when disease is not so prevalent the powder will keep the animal's coats smooth and glossy, and the farmer thinks his stock is in the best of health, when along comes some infectious disease and gets a good start in the herd before the veterinarian is called, and if he tries to stop the spread of the infection by vaccination and a number of animals that are already infected should die, as generally is the case, then the vaccine was no good and I have heard them claim that the vaccine was no good and lose faith in it. Whose fault is this? I presume you think it would be ethical

for us to go out and sell some preventative for the various diseases or visit a man's farm about every so often to see that all animals were free from disease. The arguments that some of the peddlers use is enough to make a sale many a time. I remember of one agent last fall making a claim that his powder was recommended by the Bureau of Animal Industry and that it was found that hogs could be kept immune to cholera if the powder was fed regularly. I reported this man to the officials at Washington, D. C., and they informed me that I would have to take this up with officials of my state. I did and received the answer that if such claims were printed on the label of the container they could be held responsible, otherwise not. How many farmers care whether on not this is printed on the label? The agent said so, and there must be something to that or he would not dare say that, not realizing that he cannot be held responsible. Of course in time this farmer is going to realize his mistake and leave the stuff alone, but think of the number of animals that are lost before this stage is reached. The hogs are lost and what can we do about it? They are the farmer's property and he has a right to buy what he wants, where he likes and feed as much of it as he likes; yet I take it that you presume it is our fault because we did not observe swine culture and hygiene in all its phases or had failed to inform ourselves sufficiently in the matter of swine diseases and practice. You also state that it depended upon my honesty in dealing with my clients and that if I did there should be no kick coming from them. I was raised in this community and hold the confidence of my clients and there have been no kicks that I overcharged as I realize that reasonable charges are a large factor in establishing yourself in business, but I will not undercharge our standard of prices with the intention of holding the confidence of my clients or to draw new business and if we must become "scab practitioners" in order to meet the prices of the proprietary medicines, then I am going to quit right here as I certainly do not care to play a losing game, and I am sure that you would not care to do so either. I am experienced in several other trades and I certainly have brains enough to know when to quit, if I was failing in my business, without exposing myself as you seem to think I have done, nor would I raise a "whine" in the Journal and make my situation known to the whole profession.

As to seeking legislative enactments to protect myself from financial ruin, that is so absurd a statement that it is not worth while to speak of it. The fakers are not injuring me financially or otherwise and that is not the point that I raised in my article. I think I made it so clear that a child could understand my argument, i. e. the conservation of food producing animals. You also speak about the veterinarian being qualified to render a real service to the farmer and that the peddler was handicapped, all of which is perfectly true, but when it comes to the time when we are expected to go and make calls to examine sick animals with the idea that we can sell that man some "hog-tone" like the peddler pretends he is able to do or give advice pertaining to the care, etc., of hogs, all gratis, like the agricultural adviser does, then that is my stopping point. I will gladly give my clients all the information possible either when on a call or at my office but I will not make the trip to "see" the pigs without the regular fee for my trip. I have practiced prophylaxis as much as possible, and I believe any of the biological houses will testify to this by the amount of serums and bacterins that I purchase every year, but I presume you think that we ought to make investigations of the stock in our territory and give free advice in order that we might practice prophylaxis in the full sense of the word. You must be aiming at a socialistic form of government when the veterinarians would be in the employ of the government and it would then become their duty to inspect stock at regular intervals and keep them free from disease. They would have the power to quarantine, order sanitation, etc., but we have not that power of authority. You would probably be the first to "whine" for a return of the "good old days." It is true that some of the farm papers do condemn the filling of animals with powders, but I see many such papers in farm homes carrying alluring ads about stock foods. As long as this sort of advertising continues the farmers will "fall" for the dope. I expected to read a reasonable argument in reply to my article and if you will use some reasonable ones then I shall try and answer your questions to the best of my ability, otherwise I shall not take valuable time to explain.

Williams, Ia. W. B. BOSSENBERGER.

Comment:—There are pertinent facts and worth-while arguments in the foregoing as there were in Dr. Bossenberger's former communication to which he alludes and some fallacies as well, as was pointed out in the reply to which he objects. The thing made most obvious of all in the foregoing is the fact that he has not read (understandingly) the comment that he criticizes. A somewhat critical examination of it reveals a fair command of English and quite specific statements and it is a waste of words to comment on what it "seemed" to say. What was actually said is the only point at issue. Doctor Bossenberger's dexterity in setting up a straw man and then annihilating him is worthy of a place in the United States Senate.

The comment to which Dr. Bossenberger objects, as I read it, says:

1. There is no law prohibiting the practices he complains of. The reply of his own state officials support this.

2. Such a law would be impossible of enactment by legislatures constituted as our present legislatures are. If one has doubts as to this a little experience with any legislature will bring conviction.

3. Such a law would be undesirable because laws must be general in their applicaton and there could be no logical limit on such regulatory matters.

4. The ills of which he complains have been largely eliminated from some localities. This can be proved.

5. It was done by education of the hog raisers and in this education local veterinarians had a part.

6. The farmer prefers having his hogs kept well to having them cured when sick—prophylaxis to therapeutics.

7. The veterinarian is the logical one to give him this service. If he goes to some one else for it, it is probably *in part* the fault of the veterinarian.

IMPACTION OF THE COLON

This is a grave condition occurring in our equine patients. As to its etiology and clinical symptoms, these are more or less familiar to all practitioners. Prognosis, however, should be guarded and not rendered too hastily as there is always danger of fermentation, and again the impacted mass may be so large and firm that it cannot be removed. This is a condition that calls for sound judgment, proper caution and treatment. It is absolutely a case of treating the symptoms with the ultimate view of removing the cause, which is impossible to accomplish in a few minutes by drastic purgatives.

I will select a few cases and endeavor to show the necessity of the different modes of treating this disorder, as almost every case will be found to differ more or less from all others. I find in my colic practice that fluidextract of Passiflora incarnata is indispensable. It will not constipate and it will not prevent or retard the action of strychnin in restoring peristalsis, but it does prevent strychnin from increasing the pain by stimulation of the cord.

Case No. 1: A brown mare, three years old, weight 1,250 pounds, in foal. In January, 1913, she had been running on the prairie with access to straw stacks; she was not stabled at all.

Etiology: The impaction was probably due to coarse foodstuff with insufficient water.

Symptoms: Colicky pain almost continually; in recumbent position; very little rolling. Peristalsis absent; impacted mass at pelvic flexure.

Diagnosis: Impaction of large colon.

Prognosis: Withheld.

Treatment: Fluidextract of Passiflora incarnata, four ounces, followed with one ounce doses every two hours to keep her quiet. Strychnin sulphate, physostigmin benzoate, one-half grain of each, every six hours to stimulate peristalsis. Magnesium sulphate and sodium chlorid as cathartic after peristalsis was restored.

Brisk bowel movement set in the second day and there was a nice recovery. As this was a wild unbroken filly, I could not conveniently give the rectal injections which are very beneficial in this condition.

Case No. 2: May, 1915, gray, blind gelding, eight years old, weight 1,500 pounds, working breaking prairie.

History: He had been dull and listless all day and passed very little feces; did not eat his dinner with a relish; drank very little water, ate no supper and took violently ill. I was called about 7:30 p. m.

Etiology: Careless method of feeding with too much poor hay.

Symptoms: Severe colicky pains. Pulse 42 and strong; respiration a little increased. Peristalsis active in small intestines.

Diagnosis: Impaction of large colon, undoubtedly at diaphragmatic flexure.

Treatment: Oil of peppermint, one-half dram and fluidextract of Passiflora incarnata, four ounces, followed with one ounce every hour until eight ounces had been given, this being necessary before the horse got into a restful condition. Magnesium sulphate and sodium chlorid given at ten p. m. Strychnin sulphate, one-fourth grain, every two hours. After the third dose, peristalsis seemed to be about normal. Two deep rectal injections were given, which were retained.

I left this animal at four a. m. in fine shape. Evacuation occurred about noon and the following day he went to work.

Case No. 3: April, 1918, spotted mare, in foal, eight years old, weight 1,150 pounds. I was called about 8 a. m.

History: She had not been working and was found sick in the morning.

Etiology: Indigestion.

Symptoms: Abdomen greatly distended; pulse good; breathing labored; peristalsis weak.

Diagnosis withheld. Prognosis, unfavorable.

Treatment: Enterocentesis of cecum and also of large colon. As she was wild and nervous, I gave an anti-flatus capsule and repeated both the operations. I then gave fluidextract of nux vomica, one-half ounce and oil of peppermint, one-half dram. About 2 p. m., all symptoms of gas had disappeared and the animal was resting well. I rendered my diagnosis as impaction of the large colon with acute indigestion. I gave magnesium sulphate one pound, and sodium chlorid, one-half pound.

This mare aborted but otherwise made a nice recovery.

Case No. 4: August, 1919, gray gelding, six years old, weight 1,400 pounds. I was called about 3 p. m.

History: The horse had been sick since the night before. The boys had been working him away from home and had worked him all day.

I was "mad all over" as this was a good animal and the owner could ill afford to lose him. The boys were young and did not think he was very bad as he would micturate often and then lie down. They did not think he needed help as it was only his "water," so they kept him going as long as they could.

Etiology: Careless feeding and watering.

Symptoms: Lying down with occasional rolling; frequent attempts at micturition; pulse 45; temperature 101°F.; respiration a little accelerated; abdomen somewhat tympanitic; peristalsis absent in large intestine.

Diagnosis: Impaction of large colon at pelvic flexure. Prognosis guarded.

Treatment: Fluidextract of nux vomica, one-half ounce; fluidextract of Passiflora incarnata, four ounces; oil of peppermint, one-half ounce. In one and a half hours, I gave the magnesium and sodium cathartic and rectal injection. I gave one ounce fluidextract of Passiflora incarnata every hour. At nine o'clock he drank three gallons of water. Evacuations began the following morning, and there was a nice recovery.

Dorland S. D. F. M. LONG.

AMMONIUM CARBONATE, NUX VOMICA AND TURPENTINE SUCCEED IN COLIC

During the last two years I have almost entirely cast aside linseed oil as an aperient partly because of its price and partly due to the disagreeableness experienced in its administration. Furthermore, speaking from experience in my territory, I believe that 75 per cent of the cases of so-called colic will recover without the use of an aperient. In place of oil, I use aloes in the form of the purgative capsules marketed by our veterinary supply houses and have yet to see any ill effects from their use.

After having diagnosed a case to the best of my ability and eliminated any flatulent condition, I immediately administer two No. 10 capsules of ammonium carbonate (these when packed well will hold almost an ounce apiece), followed by oil of turpentine, two ounces, aromatic spirits of ammonia, one ounce, and fluidextract of nux vomica, one dram, mixed with a little mineral oil. This I administer with a common dose syringe. In most cases peristalsis will be well in evidence in thirty minutes, and then an aloes capsule with directions as to exercise of the animal the next day, and an eight-ounce bottle of nux in solution to be given every two or three hours, complete the treatment.

If, however, peristalsis is not in evidence in thirty minutes I repeat the turpentine, etc., and leave the nux, advising the client that I will return in six hours, at which time the ammonium carbonate is repeated and so on until the case terminates either favorably or fatally. I have had only one case that required the third visit, and at that time it was decidedly better and made a good recovery. For this line of treatment, I am indebted to Reeks in his admirable little work "The Common Colics of the Horse."

CASE No. 1. Grey Percheron mare, fat, weight 1,500 lbs., age seven years. Diet: oats, corn, timothy hay and grass at night. Water supply, surface well. At work cultivating corn after a day or so of rest. Weather warm. This mare became ill at 11 o'clock a. m. I was called at noon.

The case was perplexing because the mare did not at first show any of the usual symptoms. She was uneasy, kept moving and raising her hind feet in a stiff ungainly manner. The respiration and pulse were not altered and she did not show any other symptoms of pain. After watching her for about thirty minutes, she suddenly went down and lay stretched out and quiet. After catheterizing to satisfy the owner, I began to suspect colic and auscultation proved peristalsis in complete abeyance.

The following prescription was given:

℞

Oil turpentine	℥ii
Ar. spts. ammon.	℥i
Flext. nux vom.	℥i
Oil q. s.	℥iv

This was repeated in thirty minutes without benefit. Then arecolin hydrobromid and strychnin sulphate were administered hypodermically and repeated in thirty minutes with no results beyond emptying the rectum. At three o'clock an enema of four gallons of warm water and two ounces of gylcerin was given.

The mare had assumed the general characteristic symptoms of subacute obstructive colic, pulse rapid and full, respiration accelerated and the face wore an anxious look. At five o'clock she was very much depressed, uneasy when up and fairly quiet when down. After giving an unfavorable prognosis, I determined to return to the office and prepare some capsules of ammonium carbonate, which hitherto, I had not used. Returning I gave one capsule every fifteen minutes until four had been given. Upon administering the last capsule, I noticed some peristalsis which did not last long. The case was left with instructions to the owner and the information that I would return at eight o'clock. At that time I found the mare in much the same condition except that the pulse showed some improvement. Two ounces of ammonium carbonate were administered. At midnight I was very much surprised and relieved to find the mare with good peristalsis and pulse and a much better facial expression. However, another capsule of the carbonate and one of aloes were given and nux left to be given in dram doses every two hours.

Upon calling the next noon, I found that the patient had had three copious bowel evacuations. From then on recovery progressed satisfactorily. This was a valuable mare. I firmly believe that

she would have died but for the ammonium carbonate.

CASE No. 2. Grade Percheron mare, in good condition, weight 1,200 lbs., age eight years. Was not working. With other horses got to threshed wheat and amount eaten could not be determined. She was the only one affected. Became ill at noon. Treated by the owner until evening; I was called at six thirty.

I found her down and groaning with each breath; pulse rapid and almost imperceptible, conjunctiva highly injected. Peristalsis in complete abeyance; diagnosis was of course easy. Temperature 102.4°F.

The owner was informed as to the danger now that he had let the case progress so far.

The owner had administered seven doses, thirty drops each, of fluidextract of nux vomica. Upon my arrival, the mare was at once given two one ounce capsules of ammonium carbonate and the same prescription as in case No. 1. This with the exception of the carbonate was repeated in thirty minutes. After the same interval, she received two more capsules of the carbonate, and after leaving the prescription of turpentine, etc., to be given in an hour, I left saying that I would return at midnight at which time she was very much improved but nevertheless received two more capsules of the carbonate and one of aloes and was put on nux vomica every two hours. This also was a valuable animal, and when I was called she was in a very bad condition. I attribute her recovery to ammonium carbonate.

CASE No. 3. Aged gelding in poor condition, weight 1,100 lbs., turned in barn lot and probably had gained access to wheat. Became ill in the evening and I was called at noon the next day.

Symptoms: Dyspnea, pulse rapid and almost imperceptible, conjunctiva highly injected, temperature 103° F., peristalsis in complete abeyance, animal very weak in hind quarters and frequent attempts at micturition led the owner to think the trouble was of urinary origin. Rectal examination produced much straining and revealed the rectum pressed back by the intestines so that it was with difficulty that the hand could be forced into the rectum. Nothing was gained by this except that the bladder was found to be empty and that an enema was not indicated because of the straining produced. It was with difficulty that the patient could be kept on its feet. When down it lay stretched out and quiet except for frequently looking around at the flank. The face had the characteristic haggard look and his eyes what Dr. Gus Holkerbrink of St. Joseph, Mo., calls the "far away look." The patient was surely in a very grave condition and a like prognosis was given.

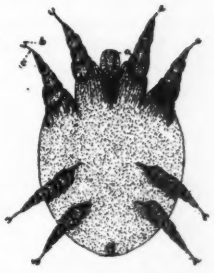
Treatment: Same as in case No. 2. At five o'clock I was informed by telephone that the animal was about the same. I visited the case again at eight p. m. and found much improvement in the pulse and some peristalsis. I administered two ounces of ammonium carbonate and left directions that the medicine be continued through the night and that I would return the next morning. At that time much improvement was found; pulse fair; peristalsis fair; conjunctiva much less injected, and best of all the information that there had been two copious bowel movements.

This case received in the interval between noon and the next forenoon eight ounces of ammonium carbonate besides the aloes capsule at eight o'clock and the other medicine. This case owing to the advanced age and poor condition of the patient was in my opinion the most remarkable recovery of the three.

Chillicothe, Ill. R. M. CARTER.

AIR SAC DISEASE IN POULTRY

On July 31st a client reported to me that his chickens were dying with some kind of disease, which he thought was either cholera or limberneck, but after questioning him, I decided that the trouble was some other disease and asked him to bring a couple of sick birds to my hospital for examination.



Air sac mite, Cytodites nudus (From Kaupp's "Poultry Diseases").

Two birds were brought in with the following symptoms: The birds were dull with a temperature of 105° F., combs pale, breathing very difficult, showed a slight diarrhea. The head was carried in a drooping manner, and they would lie around two or three days and then die.

Post mortem examination revealed that the crop, gizzard and intestines had a sour smell; yellowish nodules appeared on the lungs, liver and peritoneum; and the lungs were congested. Microscopic examination of the nodules showed them to be the Cytodites nudus or the air sac mite.

I advised the destruction of all sick birds and a thorough disinfection of the pens and henhouses. Sulphur mixed with their feed was prescribed as internal treatment. When last heard of, the flock was getting along nicely.

Beloit, Kans. F. J. RUFFNER.

JANELLE'S QUICK ACTING CATHARTIC

I have received some inquiries from veterinarians in the United States, asking if that cathartic of mine, described in the July issue, will keep. I wish to assure them that it will keep any length of time. I should have mentioned barium chlorid of Mercks too, no other.

Sherbrooke, Quebec. J. A. JANELLE.

RETAINED PLACENTA IN COWS

In the general course of the uncomplicated cases, removal of the placenta is comparatively easy and is all that is required, granting the work is accomplished with reasonable care and in a sanitary manner. In these simple cases, removal is usually accomplished in from twenty to forty minutes, leaving the cow in a strong condition, quiet and not straining to any marked degree. The complicated cases are those where the placenta is very adherent and, as we might say, grown fast to the cotyledons, threatening to cause their becoming detached, regardless of the duration of the case; where injuries are present to the vagina or uterus; where abortion has occurred and where the os uteri is very much constricted.

In handling any of these cases the external genital organs and tail should be thoroughly cleansed. The arms of the operator should at all times to be free from excreta and any other contaminated material and well lubricated. The supply of water that has been boiled should always be plentiful and never allowed to become highly contaminated from the filth off the operator's arms.

The general use of douches as a part of the regular routine probably does more harm than good. There are only three places where the douche should be used, namely:

1. To safeguard the operator from infection. In long standing cases and in those cases becoming contaminated from the laity's crude efforts in effecting delivery.

2. To dry up the slippery mass of placenta. In order to obtain more easily a firm grasp and retain the hold. Potassium permanagnate solution is a very satisfactory douche for this purpose.

3. To balloon the uterus. For the purpose of facilitating removal of fragments of the placenta and detaching the placenta from the few cotyledons at the further end.

The work required to remove the placenta in any instance should never be carried to the point of even threatening exhaustion with exaggerated straining becoming apparent. No good accomplishment is to be had by more fatigue to the patient and operator. If in the course of the operator's work, the cotyledons are partially detached, they should be removed.

In handling cases of abortion, attempt to remove only the body or bulk of the placenta at the first visit. This visit should more preferably be made after forty-eight hours from time of delivery of the fetus. Uterine capsules containing boracic acid, iodoform and hydrastis should be used. The second trip is made on the following day. The removal of the placenta from the cotyledons is comparatively easy. Repeat the use of the capsules and leave the case.

The same treatment is used on those cases where the placenta is very adherent to the cotyledons, while the cotyledons themselves are endurated and enormously enlarged.

In cases of long standing where the os uteri is so endurated and constricted, as not to allow free and easy introduction of the hand into the uterus, treatment at best is a long drawn out affair and usually unsatisfactory.

Tama, Ia. FRED M. MAXFIELD.

COCCIDIOSIS BOVINE*

In 1878 Zurn noted the presence of coccidiae in the intestinal mucous membranes of a calf, which had died of acute enteritis. The same year Rivolta considered the coccidium of the rabbit as distinct from that of the ox. Since then the malady has been recognized in all European countries, and in South and West Africa and elsewhere. To it has been applied a variety of nomenclature—hemorrhagic enteritis, red diarrhea, coccidian diarrhea, coccidian enteritis, dysentery, etc. Since then zoologists are not entirely agreed as to whether the parasite that affects both animals is one and the same. The author had in 1917 an opportunity to undertake the study of this affection in bovines. He mentions the frequency of spherical forms, different from ovoid forms found in the rabbit. Pathologically the coccidium of the ox shows no tendency to invade the liver and provoke dysentery. That of the rabbit invades the liver and provokes only diarrhea. Coccidiosis of the rabbit is widely spread in the farms and breeding grounds. That of the ox is confined to certain regions.

Guillebean has not been able to convey the disease from cattle to rabbits. The author in recent attempts has also been unsuccessful.

From the point of view of prophylaxis and therapeutics, it is very difficult to act against the coccidium. Numerous agents are ineffective, namely creolin, lysol, resorcin, hyposulphite of soda, tannin, nitrate of silver, sulphate of iron, alum. Atoxyl with sodium chlorid should have marked effects. Chlorid of emetin and salvarsan will be tried.

The problem of disinfection of manure is very difficult.

The author notes the following conclusions:

Bovine coccidiosis is due to a special species. It is disseminated in stables, byres, and fields by affected animals. Unless disinfected properly these places retain the infecting agent.

As good prophylaxis the following precautions are essential—

(a) Isolation of the sick and treatment by an agent capable of sterilizing the parasite.

(b) Disinfection of manure by sulphuric acid.

(c) Drainage of pasture and provision of clean drinking water. L. J. K.

*From Archives Vet Suisse.

GOOD RESULTS FROM BACTERINS

Some time ago I noticed in the Journal where a veterinarian had tried a dose of bacterins on a sick hog with an additional injection of ten grains of sodium cacodylate. I thought this might be worth trying, until I was called a short time ago to see a sick hog. The animal was a pure bred Chester White. It had a temperature of 105.5° F., walked about with arched back and refused to eat. I gave him a 10 c.c. injection of mixed bacterins and told the owner I would return in four days and repeat the treatment. Before leaving I instructed the owner to turn the hog out of the hog house and let him run outside.

On returning four days later, I was informed that the hog was feeling so well that he got through all the fences and had to be penned up again. As the animal appeared to be normal in every way, I did not repeat the treatment. I am not and have not been an enthusiast on bacterins but do seem to get good results using them in diseases of swine and hemorrhagic septicemia in cattle.

Ashton, Ill. E. B. McCLURE.

PURPURA HEMORRHAGICA FOLLOWING INFLUENZA

I have had a couple of cases lately where purpura hemorrhagica has followed influenza, and as this is a subject that has been under discussion in the Journal lately, I shall give my experience with these cases.

I was called out to see a four-year-old stallion, which the owner said had just recovered, or was just recovering from influenza and was starting to eat good again, and to look better, when he was noticed to be swollen nearly all over the whole body.

I found this stallion with swellings around the head, legs, and flanks. The swellings on the sides were from two to four inches across and well defined; the swellings on the legs were very abrupt or were sharply defined from the healthy tissue.

The swellings on the head were mostly around the lips, nostrils and the eyes. The eyes were almost swollen shut, and the lips were greatly enlarged, so that it was only with great difficulty that the horse was able to get any food into his mouth.

I gave the horse one pint of raw oil with one ounce of turpentine and one-quarter ounce of potassium chlorate. I left the following treatment to be given later: One-half pint of raw oil with one-half ounce of turpentine, to be given every four hours until four doses had been given, and the following powders—equal parts of gentian, iron sulphate and potassium chlorate, a tablespoonful to be given every six hours.

A few of the swellings sloughed off under the lower part of the body, but otherwise the horse made a good recovery and is as good as ever today. I also had the owner put the feed up high, so that the horse would be reaching up for it all the time as I considered this might help the swelling, in the head.

The second case was about the same, but it did not slough and made a good recovery with the same treatment.

Vermilion, Alta. W. J. MOON.

AN INVESTIGATION ON DISEASES OF GOATS.

The state of Missouri is fostering the live stock industry to the fullest capacity. The authorities of that state are attempting to stimulate the production of every type of animal that will be profitable to the land owners of the state. The state veterinarian has recently instituted an investigation of diseases in goats in the Ozark section. This investigation was stimulated by various reports reaching the state office from the secretary of the Angora goat association in which if was stated that goats were dying in large numbers of a disease or diseased conditions that were not well understood by the goat breeders in that section of the state. Dr. A. T. Kinsley under the direction of the state veterinarian made a trip through the Ozark section and reports as follows:

Fig. 1.—A goat showing the matting of the mohair as a result of diarrhea.

A large percentage of the diseases of goats in the Ozark section of Missouri is due to parasitism of the digestive tract. The parasites found consisted of stomach worms and whip worms. The loss in kids was attributed to this cause, and in some instances it appeared as though the loss had been from twenty to thirty per cent of the kid crop. This condition can be quite extensively controlled by the use of medicated salts.

Goats being very fond of salts will soon develop an appetite in which they will relish salt mixed with copper sulphate and iron sulphate, and in some instances arsenic has also been added and such medicated salt has been a very splendid preventive agent, although its curative value for an already infested animal is questionable.

Some very heavy losses have occurred to the mature goats as a result of hemorrhagic septicemia. One ranch was visited in which the loss from this disease alone totaled over seven hundred head out of twenty-seven hundred. Hemorrhagic septicemia in goats is readily and effectively controlled by vaccination with ovine hemorrhagic septicemia bacterin. The losses incidental to this disease occurred primarily in

Fig. 2.—A goat that had become so weak that it was unable to get up. Such goats usually die in a few days after this condition has developed.

flocks that had been shipped recently and does not appear to occur except where the animals have been predisposed either by exposure to inclement weather or hardships due to shipping.

The cultures which were collected on this trip have not all been developed and the organisms identified, but it seems probable that takosis also exists in the goats in the south central part of Missouri. Takosis primarily affects mature animals and in nearly every flock of goats a few adults will be found that are thin and emaciated and have diarrhea. In a week or ten days they usually become so weak that they get down and die a few days thereafter.

In autopsy of such animals, marked anemia was observed and in some instances an edema of the dependent parts. The methods best adapted to control of this disease have not yet been determined, but further experiments will be carried on to attempt to find a solution of the question of control and ultimate eradication of takosis in goats.

WOUND TREATMENT

As I have had excellent results from the following treatment, I am giving it here so that any who have not tried it may do so if they care to, and I am sure that any who give it a trial will never regret it. I have been using this for a couple of years and have had the best of results, although many of our readers may have been using it long before I started to.

I have reference to the ether and iodin treatment. I use it in the following strength: iodin three drams, and ether twelve ounces.

I never wash the wounds with anything else, except I might use a little peroxid once in a while.

In all deep puncture wounds and where there is not extra good drainage, and especially where the wound penetrates to the bone or to a joint, I use only the above treatment. In an open wound I may after the first few days use a more common and less expensive treatment.

I should like to know if others use this and if they use it stronger or weaker and what their experience has been.

Vermilion, Alta. W. J. Moon.

ABNORMAL LOCATION OF VULVA IN A HEIFER

While investigating the cause of death of several head of cattle, my attention was called to a yearling running in an adjoining pasture. On examination I found that to the casual observer she appeared to be a normal heifer, but closer observation revealed the fact that the vulva was very small and situated between the two hind teats, causing a peculiar sight when urination took place. The anal opening appeared normal, but I never saw the vulva so far from it before. Otherwise the animal seemed normal, was of average size for its age and a good vigorous yearling.

Mooers, N. Y. C. J. Mulvey.

SODIUM HYPOSULPHITE FOR IMPACTION COLIC

I have found the following line of treatment effective and reliable in dealing with impaction of the large colon.

Assuming the patient is a large draught horse, weighing 1,500 pounds. If the animal is suffering much pain, it receives a dose of lobelin sulphate. (If there are only signs of dull pains at intervals, neither lobelin sulphate or any other sedative is given.) The stomach tube is passed and twelve ounces of sodium hyposulphite dissolved in three gallons of warm water are pumped into the stomach, the tube is withdrawn and one-half grain of strychnin given under the skin. Strychnin in small doses is administered every three hours thereafter until ten hours later when one grain of arecolin is given, followed

immediately by one-half grain of strychnin. This single dose of arecolin usually has the desired effect.

In this part of the world the ration for work horses during the spring work usually consists of oat sheaves from the previous year, the oats having been cut before being fully ripened, and crushed and chopped oats.

Most animals in this section are rather indifferently cared for during the idle season, and therefore when put into steady work in spring, on the above ration, the veterinarian will get many urgent calls to treat horses, which the owners usually declare "have something wrong with their water," etc.

My first trial of the sodium hyposulphite solution for impaction of the colon happened in the spring of 1914. I had been treating a twelve-year-old gelding, weight about 1,100 pounds, for several days, for this trouble, and following the line of treatment outlined in "Reek's" I had given nux vomica and ammonia carbonate, with arecolin or eserin at intervals, during several days with no result that I could detect except gradually increasing weakness. In despair I gave the animal one full pound of sodium hyposulphite in a bucket full of warm water, via the stomach tube route, and eighteen hours later the obstruction had liquefied and was coming away nicely.

Kil'am, Alberta, Canada. THOMAS CHILDS.

STRYCHNIN POISONING IN A MARE

I was called to see a mare that the owner informed me had eaten some strychnin in the form of squirrel poison. I immediately left for his ranch ten miles away. On arrival I found a typical case and immediately gave the animal ten grains of morphin. I then inquired how much the animal had eaten. The owner informed me that he had two-thirds of an ounce of strychnin mixed with one gallon of rolled oats and that as nearly as he could tell he thought the mare had eaten about a quart of it. While I was trying to figure out how much strychnin she had absorbed, the animal fell down and immediately got worse. I gave her fifteen grains more of morphin and held her quiet, but her struggles were so frequent that she was about worn out. Once in a while she would rest quietly and then start to get up but was unable to rise. She was down four hours and in that time was given forty-five grains of morphin and three ounces of chloral hydrate per rectum. Eventually we got her up, but she was so nervous that she would not stand still and had to be snubbed to a post. I then tried lobelin sulphate, 1/10, tablets, two tablets every hour for four hours. She quieted down and appeared to be improving, but three hours later (eight hours after she had eaten the strychnin), the owner called me and said she was worse.

I drove out again to see her and found her sweating profusely, pulse imperceptible, staggering gait and looking like she would fall any minute. I gave her three ounces of chloral per rectum. In thirty minutes she apeared quiet and gradually the nervous symptoms left her. Twenty-four hours after I was first called, the animal seemed to be out of danger.

Owing to the large dose of strychnin, I gave her big doses of morphin and lobelin as I thought they were indicated. While the animal was at her worst, I thought possibly a fast acting purge might have been indicated in order to hasten elimination and, if I gave one, that possibly barium chlorid intravenously would be it. Would barium chlorid have been disastrous? If so, why?

Garfield, Wash. A. R. GALBRAITH.

CESAREAN SECTION IN SOWS

Case Reports

March 15, 1919, farrowing for two days, Poland China sow, two years old, weighing 350 pounds, in fair flesh. Irritability of the sow and refusing to yield to the labor pains were the only reasons for her trouble. The three pigs that had been delivered were small and the sow had a good depth and breadth of pelvis. At this time, however, she was badly swollen and bloated. She was strong, vigorous and active. Operation was performed with ether. Three dead pigs were removed. Only one horn was incised. Sow came back on full slop feed in three days and made a complete recovery.

March 17, 1919, farrowing began early in the morning. My visit was made at 3:30 p. m. Red yearling sow, weighing 200 pounds; coupled up short and of a beef type. One pig had been delivered. Too small a pelvis to effect delivery. Operated on with ether as an anesthetic. After incision was made, tapping of the bladder was performed at once. Five live pigs were removed through an incision in one horn. Sow began to eat third day and on full slop feed the fifth day. Recovery without the loss of milk supply.

March 21, 1919, visit was made at 2 p. m.; large type Poland China sow; farrowing since 10 a. m. the same day. She weighed 375 pounds and was a year old. One live pig was delivered. Pig lodged in pelvis with head crushed from use of pig forceps. Extensive laceration in wall of vagina. Prognosis, death with or without operation. Lucky circumstance, a sow had farrowed two days prior with only three pigs as a litter; another the day before with two pigs. Object of operation to save the live litter in the damaged sow.

Operation performed with ether. Tapping the bladder. Removal of eight live pigs through incision of one horn. Owner said, "stitch her up." We did. Pigs placed with the other two sows and they didn't object to owning them. Results, sow died the next morning. Six of the pigs are still alive.

March 30, 1919, red yearling sow very fat,

had been farrowing for thirty hours with no pigs. She was very irritable and cross. She had a persistent cough. Operation performed with ether. Tapping the bladder. Four dead bloated pigs removed from two incisions, one in each horn. Result, death on the second morning.

Throughout the month of April ten sows were operated on. All had a persistent griping cough. All died from the following evening to the second morning following the operation. Cause laid to an attack of mixed infection. Each herd had a further future loss before the farrowing season was over.

April 9, 1919, red, beef type of a sow, farrowing two days with delivery of one pig. Sow badly swollen, weak and loss of vitality. Operation not recommended. Owner persisted.

Operation performed with ether. Upon examining the exposed uterus, we found a rupture of the uterus of some hours standing. Destruction of the sow took place at once.

May 1, 1919, black, beef type sow; second day in farrowing two live pigs delivered. No fever, no swelling, but much forceful straining was present.

Operation with ether. Upon examining the exposed uterus in the further end of the right horn, a small mass of some material was discovered. By means of douche hose, raw linseed oil was introduced into this horn by way of the vagina. This was proved to be pieces of placenta wrapped around small undeveloped pig. Delivery was at once easily accomplished through the natural channel. No incision was made into the uterus. Result, rapid recovery.

July 18, 1919, visit was made at 1:30 p. m., finding a small rangy grade sow, weighing about 150 pounds. Had been farrowing since early morning with no delivery. Pig lodged in the pelvis with head crushed from use of forceps. Sow badly bloated but the vagina was not swollen. At this time of day it was 95 degrees in the shade. Operation was performed on a bench under an appletree without anesthesia. Removal of one dead pig and four live ones from an incision in one horn. Results, never missed a feed; has not as yet dried up in milk supply and is nursing the four pigs.

August 1, 1919, visit made at 1 o'clock p. m. Had local showers the evening before. Poland China sow weighing 250 pounds, fat and of a beef type. Farrowing since morning with no delivery. A catch litter from a young boar. She was confined in a large stock barn. Operation performed without ether. Tapping the bladder. Removal of three dead pigs through an incision in one horn.

Because of the wound margins of the incision made in the uterus turning purple and bordering on a black color by the time suturing was being performed, prognosis was very guarded. This is a good sign in most cases to call the rendering works. However, in the evening the owner called me and said the hog got up and drank half a bucketful of skimmed milk. But the forty-eight hour period is not up. Sows that survive this period come along nicely.

Tama, Ia. FRED M. MAXFIELD.

A FREER DISCUSSION OF PRACTICAL PROBLEMS NEEDED

Nearly every time I read the report from some of our practicing veterinarians in our journals, it makes me feel as if more of us who are practicing should report some of our experiences and cases for discussion by others of the profession; for without a doubt each and everyone of us, whether he has spent many years or but a few in practice, comes in contact with cases that would be interesting to all. Not many of us have a perfect way of writing and expressing ourselves; but that is a matter the editor must take care of for us, else what is an editor for? We want to hear from those who are trying to solve some of the problems which are still wrapt in obscurity to most of us. Some practitioners have said to me that they could not pad their cases and make them look just right. I think every man who reads any of the veterinary journals would rather read a report of a case just as it appeared to the doctor treating it than to read one that has been padded, as it is termed. Another reason I think why some of our men do not report some of their cases, is because they feel that someone will criticize their mode of treating and handling, but that is just what we want. If we are criticized by other men and told a better way to do things and shown where our mistakes are, we should be glad of it and profit by it.

It seems to me that most of us do not resort to consultation in our work often enough, but instead we pull and haul against opposition. This is a large world, and there is room enough for all.

I congratulate Dr. Tyler most heartily on his article in the April issue of this journal. I think it is just what we wanted—someone to start the ball rolling, and Dr. Tyler has started it. The world today demands educated men. It makes no difference what vocation one is to follow; without education, when starting in any business, one is handicapped. I think our veterinary colleges are teaching the technical part and are beginning to give a measurable amount of the practical work of veterinary science; but treatment of the client also should receive attention. It is in this particular requirement of practice that so many non-graduates make good.

Perhaps most of us need a little reconstruction. We should not shut ourselves up in a room with our profession only, but should take an interest in the affairs around us, be able to express our views in other things than our profession, get in with the good class of people in our towns or cities, take an interest in their affairs, as we expect them to take an interest in our work, be upright, honest and intelligent and be in readiness to take part in the social side of life,

which will cultivate our minds for high ideals.

I am much pleased that Dr. Tyler has written as he has. I hope we shall hear from more of our brother practitioners on this topic, for it is a great topic to discuss, and all such discussions make more interesting our journals.

St. Stephen, N. B. E. H. Cook.

MY FIRST OBSTETRICAL CASE—SCHISTOCORMUS REFLEXUS

The accompanying illustration shows a real monstrosity and a hard case for a beginner in practice to tackle. This was my first obstetrical case in a cow, and when I saw what I was up against, I was almost ready to quit practice right there. However, I did not want to show the owner my embarrassment and decided to do something to attract his attention.

He was sent for a pail of water, towel, etc., during which time I made a superficial examination and must have been in the midst of my feat when he arrived. Of course, I wanted to keep cool and decided to make a more thorough examination, but the deeper I got the worse things seemed to be.

All four feet, head and tail were presented, and at first thought, I took it to be a transverse presentation, but when I placed my hand upon the body, it could be rotated in either direction. More difficulties seemed to be in store for me, and to be doing something, I amputated one leg, and a tug-of-war was started without results; then another amputation and another tug-of-war, and so on until three legs had been amputated, and the third pull brought forth the mass shown in the picture. The owner seemed much surprised at my being able to deliver "such a mess" as he called it and gave me all sorts of praise for knowing my business, etc.

After giving the mother some after-care, I left for home feeling much better than I had felt during the previous hour or so. The cow died two or three days later. Every text-book was searched for descriptions of the monstrosity, but none seemed to explain this one. The eversion took place through the umbilicus; the spinal column appeared as if it had been forced downward through the umbilicus, and the skin, muscles, etc., were drawn up and back over the skeleton. All the abdominal organs were fairly well developed and adhered to some portion of the body, covered with a very fine tissue, apparently the peritoneum.

Williams, Ia. W. P. Bossenberger.

HYDROPS AMNII WITH USUAL TERMINATION

Cow, grade Shorthorn, 4 years old, fair flesh. The owner reported the animal as having been bred seven months previously. The abdomen had been larger than usual for several weeks and was gradually increasing in size; the appetite poor at times; milk flow also irregular. The animal seemed to be distressed but not sick.

I called and found the abdomen much enlarged; temperature 100.7° F.; pulse about 60; respirations short and somewhat difficult. No treatment was given. Six days later while I was away, a quack was called and diagnosed the case as too much grass. He tapped the animal but did not get any gas. Then he administered a dose of Epsom salt and left. About six hours later, I returned home and was called to see the patient. She was standing, breathing with great difficulty, and a slight discharge now indicated trouble with the fetus.

About twenty minutes was required to dilate the os large enough to insert the hand into the uterus, where a rent was discovered in the superior part of the left tube. I then thought that all of the uterine contents were in the abdomen but could feel only fluid. I inserted the stomach tube and siphoned out 15 or 20 gallons of bloody fluid. This enabled me to find the fetus, which seemed to be of about two months' growth and was so softened that it was removed a handful at a time, but there was no strong odor as one might expect to find in a similar case. After removing the fetus, I found that the serous coat of the uterus had not ruptured, so I removed the placenta and irrigated the uterus with a warm antiseptic solution, siphoning it out the best I could. I then administered a stimulant and returned home.

The next morning I called and found the patient down; pulse 80; temperature normal A rectal examination revealed that the serous coat of the uterus had contracted to the size of the uterus, but the abdomen seemed to contain quite

a quantity of fluid. I passed the trocar into the abdomen as low down as possible and drew a large quantity of fluid. The patient was made as comfortable as possible and a tonic left to be given every three hours.

The next day I posted the animal, finding very little intestinal content, a very severe peritonitis, three small holes in the serous coat of the uterus and the interior of the uterus in fair condition. The owner of the patient and I estimated that 35 to 40 gallons of fluid had been drawn off with the tube and trocar. No cause for the trouble could be found. I have never read or heard of a similar case, and if others have had a similar experience, I should be glad to read a report of their cases.

Forreston, Ill. R. E. KLUCK.

TRAUMATIC PERICARDITIS IN THE COW

I noticed in the April, 1919, Journal on page 186, an inquiry and a reply on this subject. I have observed five or six cases in my practice during the past year, and I will do the best I can to describe them from memory.

TRAUMATIC PERICARDITIS

Illustration of a cow's heart with a sixteen penny nail in it. This animal gradually lost in condition for four and one-half months. She was found dead one morning, an on autopsy I found this nail penetrating the heart; one and one-fourth inches of it was still in the pericardium. Note that the surface of the heart is in a sloughing condition. The pericardial sac contained about three gallons of yellowish, offensive fluid. It is supposed that the nail was ingested with cotton seed hulls.—*Judge R. E. Richardson, D.V.M., Wichita Falls, Texas.*

Case No. 1. Jersey cow, four years old, treated for constipation as the owner said her bowels had not moved. I have noticed constipation being present in all these cases. She had an edematous swelling in and around the submaxillary lymph gland. I thought at the time it was due to an injury. I saw her again in three days, at which time she had been down for two days, and the swelling had extended under the front legs and back to the udder. I suspected it to be traumatic pericarditis, and on the fifth day I held an autopsy. I found a pailful of foul smelling pus in the pericardial sac. I did not look for a foreign body but I knew it was there.

Typical position assumed in advanced cases of traumatic pericarditis. Photo by Dr. M. R. Wilson.

Case No. 2. Large Durham cow, seven years old, had been treated for colic a year ago by another veterinarian. I did not find any swelling anywhere. The heart action was poor but could be heard. I treated her for constipation, and was called back to see her four days later, when I suspected traumatic pericarditis and so told the owner. She died the next morning. On autopsy I found a wire six inches long that had penetrated the heart, the perforation being large enough to admit my finger. The wire was rusty and where it had been working through the heart, it was worn very thin. The edges of the hole in the heart muscle were healed and looked like an old lesion. There was no pus in the pericardial sac. I am satisfied that this happened a year previous.

Case No. 3. Valuable Holstein cow, about

six years old, constipated and was treated for four days. Her heart action was fair and she looked bright. At the end of the fourth day, I told the owner she had traumatic pericaditis, although no swelling was noticeable in any part of the body. Two weeks later I saw her again, and she seemed to feel good; nose moist; and she had eaten some. She was in the habit of lying down a great deal. I told the owner to let me know when she died. Six weeks from the date of the first trip, I saw her again, and at this time, I could not hear her heart beat at all. I had given up treatment long before this as there was nothing I could do. At the end of three months she died. On post-mortem examination, I found a pailful of foul smelling, green colored fluid in the pericardial sac. The heart muscle and lining of the pericardium were gangrenous. I could not locate any foreign body, but I inferred it was or had been there. At no time had there been any swelling on her body.

Case No. 4. Small Guernsey cow, four years old, down for three days; swelling under the jaw; breathing heavily; very much emaciated. I told the owner it was traumatic pericarditis and there was nothing I could do but give her a cathartic. She died ten days later. Autopsy showed the pericardium distended with perhaps a candy pail full of foul smelling, green colored fluid. I did not look any further as I am not anxious to paw around in that mess, but there was surely a nail there.

Case No. 5. Large Durham cow, about nine years old, slaughtered. She acted the same as any other cow and did not appear to be sick. On post-mortem examination, I found the heart very much distended with perhaps a gallon of thick creamy pus. This cow did not show a thing on ante-mortem inspection. I saw several cases like this one when I was with the B. A. I. in the stock yards. I make it a business to hold autopsies on all the cows that I can.

Case No. 6. Large grade cow, eight years old; owner said bowels did not move, and I treated her. In three days he called me back. I asked him a few questions regarding the history of the case, which developed that she had had a cough for about a year, at times did not eat well and the milk flow was poor. I opened her mouth and she coughed, her breath having a very gangrenous odor. Her heart action was fair. I diagnosed a wire in the lungs, and told the owner I thought she would die in about two months and not to call me any more as I could not do anything for her. At the end of three weeks he called me again. I told him not to waste his money but when she died to let me know. Two months after my first visit, she died. Autopsy showed the lower lobe of lung gangreous, and all around it was the same. The owner's wife said, "Doc, do you remember what you told us when you were here the second time?" I had forgotten, and she said, "You told us she would live two months and it is two months today." I was almost as much surprised as she was that I told them to the day.

It will be noticed that only about half the cases have swelling around the jaw or body.

Mishawaka, Ind. H. J. MAGRANE.

MEDICAMENTS SHOULDS BE MADE PALATABLE

I fear an error occurs on page 416 of the August issue in advising ammonium chlorid and nux vomica in the feed of panting horses, and I think the same was noted in Hutyra and Marek when studying these textbooks. Horses that would eat that mess in their feed would lack the intelligence mentioned by Schwarzkopf. I have often wondered at Baker (A. H.) recommending giving drugs two or three times a day on the feed, when a practical man should know that horses would never touch it that way. I note Winslow occasionally makes a similar error, also Hoare.

Don't overlook molasses or syrup or flour paste as a suitable vehicle in administering bad tasting stuff to the lower as well as the higher animals. I have noted dogs generally vomiting all the old-time medicinal combinations, and I took up the Abbott-Waugh system of alkaloids for small animals. A veterinarian will spoil his reputation with stockmen if they observe his lack of practical knowledge and skill.

Pittsburgh, Pa. JAMES A. WAUGH.

RESULTS DEPEND UPON CAREFUL REPLACEMENT IN EVERSION OF THE UTERUS

On the morning of July 4th, I was called to see a cow, three years old. I was out on another call at the time and did not get to this case until 2:00 p. m.. When I arrived the owner said he was afraid I was too late. He told me his cow had calved the evening before and at four o'clock in the morning he found her out in the woods, down and unable to get up, with the entire uterus everted.

I went to where the cow lay and found conditions as the owner had stated. The uterus having been out so long, was becoming black, had swelled considerably and was covered with leaves, hair, dirt and feces.

Treatment: I used plenty of hot water, pouring it on the uterus for about an hour. This softened it up, and with some difficulty I managed to return it to its natural position. By pumping in and out about ten gallons of hot water with antiseptics. I soon had the kinks out of the uterus, and the cow never attempted to strain from that time on. Her other trouble, obstetric paralysis, was treated with nux vomica, and in three days the cow was up and doing well.

I have been very successful with these cases,

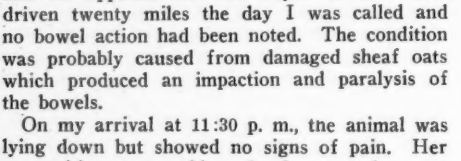
and I attribute my success to the use of plenty of hot water before returning the uterus and pumping in a considerable quantity afterwards to take the kinks out. I sometimes use a rope truss to be safe, but seldom find this necessary.

Wellston, O. G. W. RADER.

CATHARTICS USELESS IN IMPACTION OF THE COLON

I was called to see a mare mule, six years old, weighing about 1,100 pounds. The owner stated that the mule had been sluggish and had had no appetite for two days. It had been driven twenty miles the day I was called and no bowel action had been noted. The condition was probably caused from damaged sheaf oats which produced an impaction and paralysis of the bowels.

On my arrival at 11:30 p. m., the animal was lying down but showed no signs of pain. Her extremities were cold, and when urged to get up, her movements were very stiff. Pulse, respiration and temperature were normal. The mucous membranes were slightly yellow and the mouth was slimy and had an offensive odor. There was no peristalsis, only an occasional tympanitic sound. On rectal examination, an impacted mass, the size of a man's head, could be felt in the colon. My diagnosis was impaction of the colon. Prognosis, grave.



Hospital and office of Dr. R. C. Hutchings.

Treatment: Two quarts mineral oil with two ounces each of turpentine and ammonium carbonate in capsule. In twenty-four hours there had been no action of the bowels, her stiffness and soreness had increased, the membranes of the eye showed some petechial spots and the temperature was up one degree. The treatment was repeated with rectal injections. In twelve hours the symptoms were the same. I administered one quart of oil and ammonium carbonate and left some nux vomica in dram doses with instructions to give a quart of the oil every twelve hours with rectal injections.

The mule lived five days with no apparent great pain and the symptoms remained unchanged until the time of death. Autopsy revealed a hard, dry mass in the left dorsal curvature of the colon, and all the medicine was still in the stomach with very little food.

This trouble is very frequent in my territory; and with everything I have used or tried, the results are very poor. Has anyone obtained good results by using the new vacuum syringe in these cases?

Terrell, Texas. R. C. HUTCHINGS.

MILK FEVER PATIENTS NOT TO BE MOVED

I have been a reader of *The Journal* for some time and of late have followed the articles by Dr. DeVine on cattle practice with a good deal of interest. In a recent issue where he discusses parturient apoplexy, I heartily agree with the author in pathology and therapy of this disease; but there was what seems to me one very important point in conjunction with the treatment that was overlooked; viz., always to warn the owner not to endeavor to move the milk fever patient. In my practice, this act by the owner has caused several deaths. A cow that is affected with parturient paralysis evidently has a very weak heart action and if excited by being made to move, or even rolled on a boat such as used by farmers to draw animals to the barn, dies suddenly.

It has been my sad experience to record several such untimely, and I might add, uncalled for, deaths, because if they had been left quiet where they were first attacked by the disease, they undoubtedly would have recovered promptly if properly treated.

I would suggest two timely warnings: first, never move or attempt to move a milk fever patient before treatment; second, do not give any drenches to such a patient until she can stand at least. No matter where the patient is down or what the weather conditions are, treat her as described by Dr. DeVine, making her as comfortable as conditions will allow, but do not move her.

Battle Creek, Mich. F. E. STILES.

A CASE RESEMBLING FORAGE POISONING

I was called nine miles into the country on May 18th to see an ailing cow owned by a widow. It was a good grade Holstein cow, six years old. The functionating was apparently normal; parturition three days previous; placenta expelled in a few hours, and calf well. The cow was fed on blue grass and mill feed rations twice a day with plenty of good spring water. She was confined and in a corral. The owner observed the cow licking one front limb below the shoulder the day before I was called, and domestic remedies were applied without avail, so I was summoned.

I found the saliva flowing from the mouth as the cow licked the limb. If one grasped the horns and turned the head to the other side and held it that way, she would lick the limb on that side. It was a new case to me as well as the natives. I withheld my diagnosis but thought of that reflex nervous conditon occasion-

ally seen in chronic heart disease in man simulating acute indigestion and frequently proving fatal; hence. I was guarded in expressing an opinion. I gave bicarbonate of soda, 2 ounces; powdered ginger, 2 drams; and powdered nux vomica, 1 dram, in a quart of strong coffee; one-half this quantity repeated every six hours till relieved, rubbing, kneading and pushing the fist freely to dent the rumen every six hours, also giving hay wisp rubbings all over the body occasionally.

The cow began to show improvement in ten hours and made an uneventful recovery in twenty-four hours. The owner and friends were well pleased with my line of combination treatments. I wonder if this was an isolated case of pica. Hoare describes it fully under other conditions.

Huntington, W. Va. D. M. PHILLIPS.

ONE TWIN DELIVERED, THE OTHER OVERLOOKED

On the morning of April 18th, I received a telephone call from a farmer ten miles out in the country, telling me a mare of his was sick. He said he had had a colt taken away from her by a veterinarian three days before and that she had been straining all the time since, and that her bladder had protruded that morning. I told him I would go out and see her. He told me to bring a gun as I might need it.

When I got there, I found a very good, black Percheron mare, aged six years, and worth about $500, with the following symptoms: pulse 80; temperature 104° F.; breathing heavy; sweat rolling off; just about played out and so weak she could hardly stand on her feet. Vaginal examination revealed a good sized colt wedged in the pelvis in the vertebrosacral position with the fore limbs flexed at the knees.

I asked the farmer about the first colt and he said: "Dr. Blank was here three days ago and took a colt away, washed the mare out and said she was fine and would be O. K. in the morning."

"Did he wash her out?"

"Yes, with a small syringe."

Without very much difficulty I delivered a fine colt that had been dead for about three or four days.

I made up a fresh solution of potassium permanganate and pumped about two gallons of the fluid into the uterus and siphoned it out. After giving some ether, nux and belladonna and leaving a prescription to be made up, I told the client I would telephone him in six hours and if he needed me I would come out. This I did, but the mare was apparently doing well. I telephoned him again in twelve hours and she was still improving, and again in twenty hours, still O. K.

The owner said: "I'll be in tomorrow to pay you," which he did, saying that the mare was fine and looked strong. He was mighty "sore" at the other doctor for fooling him, saying:

"He is a good veterinarian in a way, but the booze has got him. If he had been sober, I guess things would have been better. Well, never again."

On presenting my bill, I received a check in return with "Thanks, Doctor," and you may be sure it was for the full amount. The farmer said: "Doctor Blank did not charge me as much as that, but I am well satisfied at the price." He stayed for dinner and we shook hands and he left.

One should not be in a hurry to get away from a case, but should give the client his money's worth. Don't be afraid to make a careful examination and try to make things clear for yourself. You will find it will make collections easy when it comes to the matter of payment. Do not trouble about the booze, for you might get one friend with it, but you will get five bad ones for the one good one. Do not talk too much and knock the farmers, for you may be talking to an uncle of the one you are kicking about.

Vanguard, Sask. R. J. WALSH.

YOUR EXPERIENCE WITH THE "ROARING" OPERATION IS WANTED

Quite frequently I receive inquiries from veterinarians who are having trouble following the roaring operation, the chief complaint being an ossification of the larynx. I will be better able to explain the cause of this condition with more detailed information as to methods used in the operation and the after care.

Much valuable information on this subject could no doubt be derived from gathering together the experience of a large number of operators. With this in view, I ask all veterinarians who have performed this operation and have kept track of their cases for a few months or a year, both those having trouble and those having success, to write me a detailed description of their operation. This should include preparation of the animal, restraint, anesthesia, technic, kind of traceotomy tube used and whether inserted in the opening into the larynx or in the trachea, whether one or both ventricles are stripped of mucosa, and after care for period of one month. What percentage of operations have not been successful, and wherein did failure lie in those that were unsuccessful.

These letters will afford an opportunity to compare methods and results. They will not be published, but from them an article will be compiled for publication attempting to explain the cause of ossification and other unfavorable sequela and suggesting plans to avoid them. Letters should be addressed to my office.

JOHN H. BLATTENBERG.

130 South Union Street,
Lima, Ohio.

CONTAGIOUS ABORTION AND WHITE SCOURS

Contagious abortion is caused by the B. abortus (Bang), a non-spore bearing organism which is readily destroyed by disinfectants. It does not affect all animals in a herd at once but only a few at a time spreading gradually until the whole herd becomes affected. Usually abortion takes place from the sixth to the eighth month, but more often about the seventh.

The symptoms of abortion are usually slight, but sometimes are quite pronounced. The udder may become slightly enlarged, muscles drop at hips and there is a slight uneasiness. There is never any difficulty at this time in delivery and no such sequela as milk fever or obstetrical paralysis.

The placental membranes are very often retained and should be removed as soon as possible. This is not always possible by manual manipulation as quite often adhesions are so great that the use of force in their removal would do injury to the animal. Where adhesion has taken place, the uterus should be flushed with a hot saline solution twice daily. It does no harm if some of the solution is retained in the uterus as most of this can be removed by simply passing the hand into the vagina and then spreading it, at which the cow will strain and flush herself with no danger of a prolapse. Where all membranes are removed, flush with a one-fourth of one per cent solution of chlorazene for a few days, in which time the inflammation will have subsided and healing of the cotyledons taken place. Douching should be kept up until all discharge has ceased for at least a week or ten days and then the cow should be bred, as I believe it is easier to get such an animal with calf the second or third heat than it is later on. Animals that abort will give a fair percentage of their normal amount of milk about two or three weeks after the abortion, but they never give the same amount they would if they went through with a normal pregnancy. If an animal that aborts does not increase in her milk in a few days after the abortion, take four grains of strychnin and two and one-half grains of pilocarpin hydrochlorid and dissolve in one pint of water. Divide this into three doses, one dose to be given every five hours. This will surely increase her milk flow.

The treatment for abortion varies. Probably no two men use the same treatment in the same way. When I first began treating this disease, I injected subcutaneously 10 cc. of a five per cent solution of carbolic acid once a week, beginning after the fifth month of pregnancy and continuing through the seventh month, and it was the best I knew at that time and results sometimes seemed quite good. I had chlorid of lime used in gutters and the stable spraved with a disinfectant once a week. Now I am using abortion bacterins and am having good success. All cows and heifers that are with calf are given four injections of the bacterins at seven-day intervals. The length of pregnancy makes no difference, as those only pregnant a month or two receive the same dose as those six or seven months pregnant. I do not inject animals if they are more than seven months along. Each animal is washed twice a week with a one-fourth of one per cent chlorazene solution. They are given a small handful of a tonic made from several salts with the addition of iron, nux and gentian, twice a week and it seems to keep them in better condition. The bacterin treatment and the use of chlorazene, in my opinion, is the best treatment today, and any new animal brought into the herd should receive the bacterins and be treated until she has calved just as though she were infected whether she is or not. By doing this an immunity may be formed so that she will go full time in future pregnancies.

The relation between contagious abortion and white scours is very close. We hear different men say it is caused by the colon bacillus, the para-colon bacillus, bacillus typhosus, etc. I believe it is caused by the same bacillus that causes abortion in cattle. I don't believe there is a herd of cattle where white scours affects the calves but what the cows are infected with the abortion bacillus. I doubt if a practitioner ever was called to treat *true* white scours where the herd was *free* from abortion.

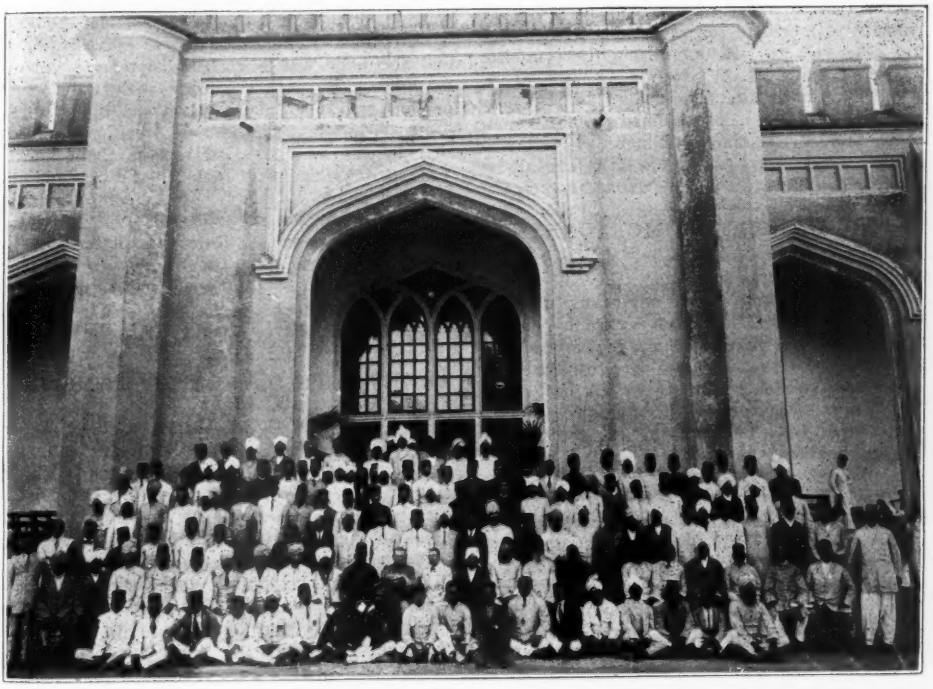
The question arises; how does the calf become infected? I have come to the conclusion after carefully observing the disease that there is but one source of infection and that is through the *first* milk of the dam. We have always been told that it was necessary that the calf have the first milk. That is all "bosh"; it is not necessary any more than it is to catch the calf at delivery in a sterile sheet. I know this to be true, as I have tried it out repeatedly. The one main fact to prevent the calf from getting white scours is to *keep the dam's milk away from it for a week*. Infection takes place through the new milk; therefore, keep it away and use milk from the whole herd and use whole milk diluted with skim milk, equal parts, in Jerseys and Guernseys. Holstein milk need not be diluted but used the same way otherwise. I have kept the calves in stalls where there never was a calf before and they had scours. I have caught them in clean sheets and wiped them off and painted the navel with iodin and other disinfectants and still had scours in the calves. But when I kept them away from their dams and gave them diluted herd milk they had no scours. After they once get scours I have had very poor success treating it. I have used serum with absolutely no success. I have used sulphocarbolates with fair results. I have tried salol, alum, creosote and other things with varied results. Prevent them from getting scours and you will be surer.

Amherst, Mass. F. G. RUDER.

UNITED PROVINCES VETERINARY MEDICAL SOCIETY OF INDIA.

The fifth annual meeting of the United Provinces Veterinary Medical Society was held at Agra on the 29th and 30th of April. There was a very large gathering of members and visitors, among those present being Major E. W. Oliver, Superintendent, C. V. D., Captain Hickey, R. A. V. C., Sheikh Niaz Mohammed, C. V. D., S. M. Raza Husain, C. V. D., Khan Sahib Sh. Amir Ahmed and the provincial inspectors of the Civil Veterinary Department, whilst nearly every district was represented by one or more veterinary assistants.

A great feature of this year's conference was an exhibition of articles of special interest to the veterinary profession comprising the latest instruments and appliances, special horse shoes, prophylactic sera and vaccines used in animal medicines, specimens of pathogenic bacteria, and biting flies and insects which play a large part in the transmission of epizootics.



The proceedings commenced on the 29th when the president of the reception committee read an address of welcome to the members and visitors, after which the Secretary of the Society S. M. Raza Husain in a brief well chosen speech invited Major Oliver to declare the meeting open.

Major Oliver in opening the meeting expressed his pleasure at being able to meet the members again and to resume these annual meetings once more. He congratulated the society on its progress and called attention to the great advances made in veterinary science the last few years. The prize essays on professional subjects this year were of great interest and some were of very high quality. He was gratified in being able to record that many of the society's members had come forward and taken their share in the great war which had now he hoped come to an end. All had not been able to be spared for military work but those who had felt disappointed at not being able to go had increased work thrown on their shoulders which they have borne cheerfully and well. Major Oliver pointed out the responsibility which rested on the veterinary department not only in the preservation of the animal wealth but also in connection with the health of the community. It is the work of a society such as this to bring within sight the day when the Government and the people themselves must realize the necessity of a strong and well equipped veterinary service. He said that if there were moments of disappointment that they did not get the appreciation or recognition as a profession which they consider they deserve they had the gratification of knowing that their labors are for the benefit of the poor agricultural classes and for the relief of suffering among dumb animals.

Sheikh Niaz Mohammed. President of the Society, in a short speech pointed out the neces-

sity for scientific men to keep themselves up to date in their professional work, and agreed that meetings of this kind were of great benefit in this direction, and were further of great assistance to the newly graduated members of the profession.

B. Srish Chandra Bhattacharjya described the encouragement which the society's efforts have met with during the past two years. Amongst other subjects dealt with the following interesting papers were read and discussed. "Sheep Breeding" by S. M. Raza Husain, "Diseases of Elephants" by V. A. Khair Uddin, "Cattle Breeding," by V. A. Mukhtar Ahmed. "The Suppression of Animal Epizootics" by V. A. Ejaz Husain, "Strangles" by V. A. Ram Sarup and "The Use of Indian Drugs" by Veterinary Inspector Hira Chandra. Prizes and medals were awarded to members for valuable work, literary and otherwise, carried out during the year, the recipients being V. A. Hamir Chand, V. A. Mukhtar Ahmed, V. A. Jamal Uddin, V. A. Ejaz Husain, V. I. Mohammed Ishaq, V. A. Allah Bux, V. A. Harnam Singh, V. A. Habib Khan.

S. M. RAZA HUSAIN.
Lucknow, India. *Hon. Secretary.*

AN AMBULATING MORTUARY

I was called recently to see a fine Belgian stallion colt about a year old. The colt was in good condition and the owner stated that he thought the animal had been kicked by one of the other horses in the pasture as he was very lame the previous day and one of the hind limbs was swollen. The owner further stated that Thursday prior to the Monday when I called, was the first time that he noticed the colt to be lame, but on Sunday the lameness was quite severe.

While the owner was driving the colt up from the field, I noticed that it walked very slowly, with its head hanging very low, but with no lameness. On examination I found a temperature of 105.6° F. and pulse very weak. The right hind leg was greatly enlarged with an edematous swelling. My first thought was lymphangitis, but after placing him in a box stall, discovered that the animal soon lay down and showed symptoms of internal pain by flouncing around, rising, walking around and suddenly dropping to the ground. The breathing seemed normal.

According to the owner's statement, the colt's appetite was good on the preceding day, so while in the box stall, we offered him some hay. The animal began to eat the hay but would walk around while eating, then suddenly stop and hold the hay in its mouth. This, and the uneasiness of walking around in the stall, led me to suspect that there was some brain lesion. I did not give the owner a definite diagnosis but told him that the edematous condition of the posterior limb might be lymphangitis but the symptoms indicated other complications.

Not being able to make a proper diagnosis, I decided to at least treat the case as lymphangitis, so administered about two drams of aloin by the mouth and one-half grain strychnin hypodermically as a general stimulant. The colt remained a little uneasy and I gave about three drams fluidextract of American cannabis. I told the owner I would see the colt the next morning and left; giving him no definite opinion at that time as to the outcome.

The next morning I found the colt dead.

Post mortem examination: On opening the abdominal cavity I found a slight enteritis. The contents of the stomach and bowels were normal. Upon removing the large colon and cecum, I found that the left half of the diaphragm was torn into shreds. The left lung was so decomposed that it could not be removed intact. The pancreas was entirely gone, and the liver was a rotten disintegrated mass resembling blue clay softened with water. A portion could be taken up on the blade of a knife like putty. The kidneys were so decayed that it was impossible to remove them intact and surrounding them was a fluid resembling pus and urine.

After holding the autopsy, I still failed to diagnose my case, but believe it to have been some disease originating in the liver or kidneys. I shall be very glad to receive some information on this case.

Dundee, Mich. A. H. DEGROOT.

AN INVOLUTED, EVERTED UTERUS IN COW

March 1, 1919, I was called to see a cow which was not doing well after parturition.

History: The cow, a four-year-old, which had given birth to one calf previously, had calved for the second time on Feb. 25, four days previous to the time I was called.

She was a grade Shorthorn in rather thin condition but had apparently had little trouble in giving birth to the calf. However, she had not ceased to strain since the time of parturition so the owner suspected that something was wrong though positive that the placental membranes had been expelled.

Vaginal examination revealed the fact that the uterus had been partly everted. The nearest approach to the vulva at the time of the examination was about four inches and there were no external signs of the eversion.

Attempt was made to replace the uterus but involution was so nearly complete that this could not be done. By traction on the mass it was brought near enough to the exterior that a ligating cord could be passed around it and the uterus was removed. Technic of Merillat was followed as nearly as possible.

Straining continued for some days but a good recovery resulted.

G. A. H.